DATE: October 9, 2017

TO: Transportation Authority of Marin Programming and Policy Executive Committee

FROM: Dianne Steinhauser, Executive Director
Derek McGill, Planning Manager

SUBJECT: Travel Monitoring and Reporting Update and Consider Adoption of Draft 2016 Transportation System Monitoring Report (Action), Agenda Item No. 8

RECOMMENDATION

Move to accept the Draft 2016 Transportation System Monitoring Report for Marin County, and to recommend acceptance by the Board.

BACKGROUND

As part of TAM's responsibilities as a Congestion Management Agency, it must update its Congestion Management Program (CMP) every two years for the County to remain eligible for federal and state funds. The next CMP update is due to Metropolitan Transportation Commission (MTC) in December 2017.

Consistent with Requirements from State Law, TAM and its consultants, TJKM Associates, have prepared the 2016 Transportation System Monitoring Report as necessary to develop the CMP. As with previous CMP updates, TAM has collected transportation data to measure system performance in even-numbered years with the most recent data collected for the CMP prepared in odd number years and forthcoming in 2017. Data gathered through this CMP process typically includes:

- Peak hour travel counts on our Arterials and Highways,
- Peak hour travel counts and occupancy information on key portions of our HOV system (where appropriate).
- Weekend hourly travel counts on portions of State Route 1 and Sir Francis Drake
- Travel Times along arterial and highways using Inrix data (where available)
- Bike and Pedestrian Counts at approximately 23 locations over a 14 hour period on weekdays and 2 hour weekend counts.

The CMP network of monitored roadways was adopted in 1994 by the CMA in response to state statutory requirements associated with the Congestion Management Program legislation of 1990. The locations of the CMP roadways are identified in the table below:

Street	From	To	Roadway Type
SR 1	US 101	Tennessee Valley Rd	Arterial
SR 1	Northern Ave	Almonte Blvd	Arterial
SR 1	Sir Francis Drake Blvd	Pt. Reyes Station	Arterial
SR 37	US 101	Atherton Ave	Freeway

US 101	Golden Gate Bridge	Spencer Ave	Freeway
US 101 (SOV and HOV)	SR 131 (Tiburon Blvd)	Tamalpais Dr	Freeway
US 101 (SOV and HOV)	Sir Francis Drake Blvd	I-580	Freeway
US 101 (SOV and HOV)	I-580	Mission Ave	Freeway
US 101 (SOV and HOV)	Mission Ave	N. San Pedro Rd	Freeway
US 101 (SOV and HOV)	Freitas Pkwy	Lucas Valley Rd	Freeway
US 101	North of Atherton	Sonoma Co. Line	Freeway
SR 131 (Tiburon Blvd)	Redwood Hwy Front.Rd	E. Strawberry Dr	Arterial
I-580	Sir Francis Drake Blvd	Marin Co. Line	Freeway
I-580	Bellam Blvd	Sir Francis Drake Blvd	Freeway
Novato Blvd	San Marin Dr	Eucalyptus Ave	Arterial
Novato Blvd	Wilson Ave	Diablo Ave	Arterial
S. Novato Blvd	Sunset Pkwy	US 101	Arterial
Bel Marin Keys	US 101	Commercial Blvd	Arterial
Sir Francis Drake Blvd	Butterfield Rd	Willow Rd	Arterial
Sir Francis Drake Blvd	San Anselmo Ave	Red Hill Ave	Arterial
Sir Francis Drake Blvd	College Ave	Toussin Ave	Arterial
Sir Francis Drake Blvd	College Ave	Wolfe Grade	Arterial
Sir Francis Drake Blvd	US 101	Larkspur Landing Circle	Arterial
Red Hill Ave	Sir Francis Drake Blvd	Second St	Arterial
Second St	US 101	Marquard St	Arterial
Third St	US 101	Marquard St	Arterial
Bridgeway	Gate 5 Rd	Gate 6 Rd	Arterial

In 2016, in response to local jurisdictional needs for better data and TAM's countywide constituents requesting same, the TAM Board authorized an expansion of the data collection process to collect additional travel data beyond previous congestion management program efforts. This data collection effort has been shaped by our member agencies, specifically Public Works staff and City/ Town Manager awareness of the effort, with increased funding from a temporary expansion of city/county fees to TAM. The TAM Board authorized an expanded set of data collection effort to include:

- Expanding the hours of the data collection to gather average daily traffic (ADT) and determine peak hour counts.
- Expanding the weekend data collection process to better compare weekend ADT to weekday ADT.
- Expanding data collection outside the CMP roadway network including the following locations:

Street	From	To	Roadway Type
Alexander Avenue	US 101	South Street	Arterial
Almonte Blvd	SR 1	Miller Avenue	Arterial
Camino Alto	Blithedale	Tamalpais	Arterial
Paradise Drive	San Clemente	Westward Drive	Arterial
Tamalpais Drive	Madera Blvd	Sausalito Street	Arterial
College Ave	Magnolia	SFD	Arterial
Bon Air Road	Magnolia	SFD	Arterial

Wolfe Grade	SFD	D Street	Arterial
SFD	Butterfield	Red Hill	Arterial
Lincoln Ave	Mission	US 101	Arterial
Manual T Freitas	Las Gallinas	Northgate	Arterial
Las Gallinas	Manual T Freitas	Lucas Valley	Arterial
Main Gate Road	Nave Drive	C Street	Arterial
Ignacio Boulevard	Alameda Del Prado	Entrada Drive	Arterial

- Expanding Bike and Pedestrian counts to include 5 new locations. The bike and pedestrian count locations now include:

ID	Count Location
1	LOS RANCHITOS RD AND PUERTO SUELLO SUMMIT
2	CAL PARK HILL PATHWAY AND ANDERSON
3	MILL VALLEY-SAUSALITO PATH AND BLITHEDALE AVENUE
4	MILL VALLEY-SAUSALITO PATH AND TENNESSEE VALLEY PATH
5	BRIDGEWAY BLVD AND PRINCESS ST
6	TIBURON BIKE PATH AND TIBURON BIKE PATH
7	MAIN ST AND TIBURON BLVD/PARADISE DR
8	S KNOLL RD AND TIBURON BLVD
9	TOWER DR AND E BLITHEDALE AVE
10	SIR FRANCIS DRAKE FLYOVER
11A	SAN ANSELMO AVE AND TURNSTEAD AVE
11B	SAN ANSELMO AVE AND TURNSTEAD AVE
12	BOLINAS RD AND BROADWAY BLVD
13	MAGNOLIA AVE & WARD ST
14	LARKSPUR-CORTE MADERA PATH
15	CORTE MADERA CREEK PATH
16	CAMINO ALTO & E BLITHEDALE AVE
17	ALAMEDA DEL PRADO AND PACHECO HILL PATH
18	LARKSPUR PLAZA DR / ROSE LN AND DOHERTY DR
19	ROSE LN AND DOHERTY DR
20	S NOVATO BLVD AND ROWLAND BLVD
21	ANDERSEN DR AND BELLAM BLVD
22	NICASIO VALLEY RD & DRIVEWAY
23	ENFRENTE BIKE PATH AND NOVATO BLVD
24	ALMONTE BLVD / SHORELINE HWY AND SHORELINE HWY
25	E. FRANCISCO BLVD AND BAY ST
26	ANDERSEN DR AND DU BOIS ST
27	MERRYDALE DR & NONE-SCREENLINE
28	US 101 NB OFF RAMP AND BIKE PATH AT SFD BLVD

DISCUSSION/ANALYSIS

The resultant 2016 transportation system monitoring report provides system performance information on a wide range of quantitative travel information from roadway speeds and volumes, transit performance, bike and pedestrian volumes and transportation demand management programs. In October through December 2016 tube counts were conducted at the identified roadway locations and video technology was used at the identified bike and pedestrian count locations. Data was collected on a seven day period to capture Tuesdays through Thursdays when schools were in session, and days with any holidays, special events or weather conditions were avoided.

Local Roadway Volumes

Roadway volumes collected during this process are included in **Attachment A**, and summarized on a 3-day (Tuesday-Thursday) average, with approximated peak hours of 6-10 AM and 3-7 PM. East Sir Francis Drake west of US 101 reflected the highest volume local road in the county, with 2nd and 3rd Streets in San Rafael in 2nd and 3rd place respectively.

Also included in **Attachment A** are time of day charts comparing Saturday and Sunday travel information with average weekday traffic for each of our local roadway segments.

Local Roadway Service Level

In the 2016 Monitoring Cycle, four of the 17 CMP roadways segments received the minimal established LOS goal or fell below that goal for the AM peak. Three of the six segments are arterial segments on Sir Francis Drake, and one on South Novato Boulevard west of US 101. These charts are shown as table 6 in the report on page 13.

In the PM 4 segments four received the minimal established LOS goal or fell below that goal, two on Sir Francis Drake, 2nd Street in San Rafael, and SR 1 west of US 101. These charts are shown as table 7 in the report on page 14.

No follow up actions are required on any of these segments, due to these meeting the established goal or roadways segments being grandfathered in as part of the original network adoption. Nonetheless, TAM and our local jurisdictions are working towards improvements on many of these road segments.

Highway Service Level

In the 2016 monitoring cycle, 3 highway segments met the minimal established LOS goal of “E” for mixed flow conditions in the AM period, and all other segments performed above this goal. All of these segments are southbound or westbound facilities, as shown on table 9 on page 20. All northbound facilities received a LOS standard of an “A” with the exception of US 101 north of the Golden Gate Bridge which has a LOS “C”.

In the PM period, 4 highway segments fell below established LOS goals for mixed flow conditions with LOS “F”. All of these segments are northbound/eastbound directions, as shown in table 10 on page 22 of the report. These roadways are grandfathered segments or currently under improvement so no action is required. All southbound facilities received an LOS standard of a “C” or higher with the exception of US 101 north of the Golden Gate Bridge which has LOS “E”.

Note TAM and its member jurisdictions are working towards improvements in the Highway 101 Corridor.

HOV Lane Service Levels

In the 2016 monitoring cycle, two segments of HOV lanes met or fell below established LOS goals for HOV lane performance, one in the AM on southbound US 101 from Lucas Valley Road to Freitas Parkway at LOS "E" and at SR 131 to Tamalpais in the PM, a grandfathered segment that has historically not met established LOS standards at LOS "F". The full performance of HOV lanes are shown in Table 12 and 13 on page 27 of the report. Again, while no follow up actions are required on any of these segments per CMP statutes, TAM and its member agencies are working on efforts to improve operations in these segments including ramp metering and bus-on-shoulder options.

Countywide Travel time comparisons

Based on the data collected as part of this effort average travel times were gathered for US 101 to compare free-flowing conditions to the peak travel periods. The average US 101 travel time (from county line to county line) is 26 minutes, with an average travel time of 36 minutes at the AM peak and 39 minutes in the PM peak.

Pedestrians and Bicycles

TAM conducts bicycle and pedestrian counts at 28 locations most of which have been counted previously by Marin County as part of the Nonmotorized Transportation Pilot Program. Bridgeway at Princess Street in Sausalito remains the highest volume on weekdays of both bike and pedestrian counts with 4,865 pedestrians and 1,929 bicyclists counted over a 14-hour period. Other high volume locations include San Anselmo Avenue at Tunstead Avenue in San Anselmo with 2,666 Bike and Pedestrian counts and Broadway at Bolinas road in Fairfax with 2,469 bike and pedestrian counts. The Central Marin Ferry Connector Bridge opened in 2016 has 530 bike and pedestrian users over a 14-hour period.

FISCAL CONSIDERATION

There are no fiscal considerations.

NEXT STEPS

The CMP is a required document and must be submitted to MTC by December 2017 for review.
TAM staff will post the information shared in this report on the Data & Statistics page of the TAM website here: https://www.tam.ca.gov/resources-news/data-statistics/

Ramp volumes are currently being gathered on highway ramps in Marin County and will be presented to the TAM Board in early 2018.

ATTACHMENTS

Exhibit A – Travel Data Summaries
Exhibit B – Draft 2016 Transportation System Monitoring Report

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Average Daily Traffic Information (Tuesday -Thursday ADT)

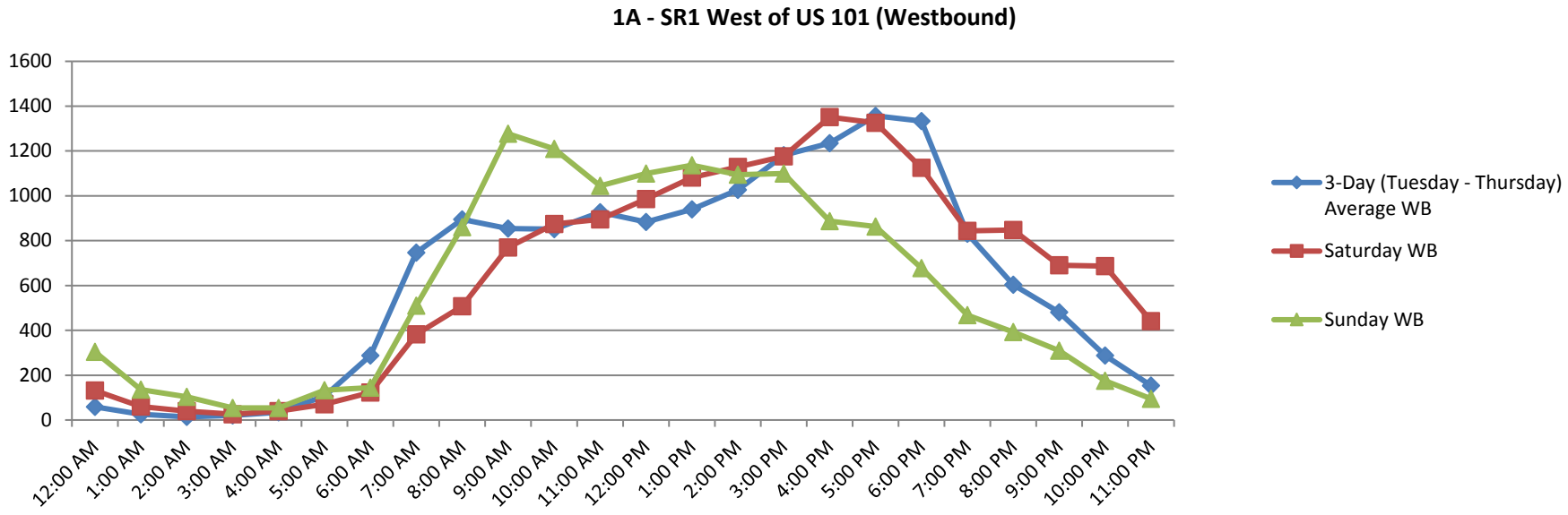
		Average Daily Traffic (T-TH)		AM Peak (6-10)		PM Peak (3-7)		
CMP Segments		*EB*	*WB*	*EB*	*WB*	*EB*	*WB*	*Notes:*
1A	SR1 West of 101	14,985	15,135	4,503	2,783	3,780	5,107	
1B	SR1 Between Northern & Almonte	5,123	2,759	1,682	580	1,201	744	
1C	SR 1 Between Sir Francis Drake & Pt. Reyes Station	1,195	1,178	202	201	381	148	*NB/SB*
4A	SR131 Between Redwood & Strawberry	15,373	16,583	3,629	4,282	4,201	4,482	
6A	Novato Blvd Between San Marin & Eucalyptus	3,405	3,707	883	825	1,006	1,294	
6b	Novato Blvd Between Wilson & Diablo	9,633	9,235	2,688	1,500	2,569	3,321	
6C	Novato Blvd Between Sunset & US 101	5,108	3,828	1,895	688	1,250	1,393	
7A	Bel Marin Keys Between US 101 & Commercial	10,443	10,215	3,550	1,556	2,087	3,808	
8A	SFD Blvd Between Butterfield & Willow	10,382	11,511	3,132	1,850	2,570	3,801	
8B	SFD Blvd Between San Anselmo & Red Hill	14,896	15,587	4,344	2,613	3,858	5,077	
8C	SFD Blvd Between College & Toussin	10,616	11,815	2,996	1,945	2,794	3,925	
8D	SFD Blvd Between College & Wolfe	14,369	15,035	3,254	3,305	3,902	4,442	
8E	SFD West of Larkspur Landing	22,320	23,551	6,410	5,666	5,114	6,535	
9A	Red Hill Ave Between SFD & Second	19,793	18,611	5,130	5,080	3,599	5,521	
9B	Second St Between US 101 & Marquard St	22,285		5,358		5,845		
9C	Third St Between US 101 & Marquard St		20,630		3,935		5,915	
10A	Bridgeway Between Gate 5 & Gate 6	12,927	13,324	2,108	3,675	4,152	3,328	
New Locations								
1	Alexander Ave Between US101 & South	3,195	4,006	463	1,161	931	1,147	*NB/SB*
2	Almonte Between SR1 & Miller	8,872	8,627	1,682	1,991	3,333	2,690	*NB/SB*
3	Camino Alto Between Blithedale & Tamalpais	3,225	1,636	414	386	1,855	534	*NB/SB*
4	Blithedale Ave East of Camino Alto	16,926	14,867	3,697	3,714	4,753	3,914	
5	Paradise Dr Between San Clemente & Westward	7,154	12,888	1,718	3,406	2,218	4,230	
6	Tamalpais Dr Between Madera & Sausalito	9,613	9,125	2,393	1,870	2,903	2,892	
7	College Ave Between Magnolia & SFD	7,478	7,162	1,205	1,988	2,290	2,049	
8	Bon Air Rd Between Magnolia & SFD	7,460	6,817	1,304	1,813	2,559	1,649	
9	Wolfe Grade Between SFD & D St	6,684	4,872	903	1,507	3,060	1,376	*NB/SB*
10	SFD Blvd Between Butterfield Rd & Red Hill Ave	13,733	17,798	4,070	2,930	3,185	5,853	
11	3rd St Between US 101 & Point San Pedro Rd		13,754		2,250		3,946	
12	2nd St Between US 101 & Point San Pedro Rd	21,747		4,002		6,851		
13	Lincoln Ave Between Mission Ave & US 101	5,280	6,988	994	1,914	2,057	2,183	NB/SB
14	Manual T Frietas Between Las Gallinas & Northgate	10,636	11,538	2,844	2,495	3,072	3,528	
15	Las Gallinas Between Manual T Frietas & Lucas Valley	3,580	3,556	694	1,533	1,300	861	NB/SB
16	Main Gate Rd Between Nave Dr & C St	3,684	3,330	973	811	1,140	1,097	
17	Ignacio Blvd Between Alameda Del Prado & Entrada D	8,803	7,257	3,364	1,192	1,914	2,459	
18	SR131/Tiburon Blvd Between Strawberry & Trestle	14,058	14,021	3,163	3,525	4,141	3,900	
19	Miller Ave Between Reed St & Camino Alto	10,296	10,343	1,866	2,409	3,482	3,088	

Average Daily Traffic to Weekend Comparison

		Average Daily Traffic (T-TH)		Saturday Volumes			Sunday Volumes			
CMP Segments		*EB*	*WB*	*EB*	*WB*	*% of ADT**	*EB*	*WB*	*% of ADT**	*Notes:*
1A	SR1 West of 101	14,985	15,135	11,888	15,600	*-17%*	11,154	14,129	*-34%*	
1B	SR1 Between Northern & Almonte	5,123	2,759	6,315	4,181	*63%*	5,271	3,658	*29%*	
1C	SR 1 Between Sir Francis Drake & Pt. Reyes Station	1,195	1,178	2,051	2,308	*86%*	1,311	1,422	*25%*	*NB/SB*
4A	SR131 Between Redwood & Strawberry	15,373	16,583	14,117	14,750	*-21%*	13,649	15,691	*-17%*	
6A	Novato Blvd Between San Marin & Eucalyptus	3,405	3,707	3,222	3,361	*-16%*	3,065	3,483	*-16%*	
6b	Novato Blvd Between Wilson & Diablo	9,633	9,235	8,408	7,998	*-31%*		6,869	*-34%*	
6C	Novato Blvd Between Sunset & US 101	5,108	3,828	3,767	3,247	*-59%*	4,336	3,582	*-28%*	
7A	Bel Marin Keys Between US 101 & Commercial	10,443	10,215	5,057	5,076	*-207%*		3,994	*-156%*	
8A	SFD Blvd Between Butterfield & Willow	10,382	11,511	10,569	11,825	*4%*		9,770	*-18%*	
8B	SFD Blvd Between San Anselmo & Red Hill	14,896	15,587	15,565	14,956	*0%*		13,203	*-18%*	
8C	SFD Blvd Between College & Toussin	10,616	11,815	8,877	10,463	*-30%*		5,611	*-111%*	
8D	SFD Blvd Between College & Wolfe	14,369	15,035	10,786	11,292	*-65%*		9,628	*-56%*	
8E	SFD West of Larkspur Landing	22,320	23,551	17,639	18,698	*-51%*	14,895	15,579	*-99%*	
9A	Red Hill Ave Between SFD & Second	19,793	18,611	17,996	16,617	*-23%*		14,443	*-29%*	
9B	Second St Between US 101 & Marquard St	22,285		19,111		*-17%*	21,661		*-3%*	
9C	Third St Between US 101 & Marquard St		20,630		17,959	*-15%*		17,721	*-16%*	
10A	Bridgeway Between Gate 5 & Gate 6	12,927	13,324	13,697	13,053	*4%*		9,870	*-35%*	
New Locations										
1	Alexander Ave Between US101 & South	3,195	4,006	4,014	4,977	*36%*		3,756	*-7%*	*NB/SB*
2	Almonte Between SR1 & Miller	8,872	8,627	7,139	8,135	*-27%*		6,120	*-41%*	*NB/SB*
3	Camino Alto Between Blithedale & Tamalpais	3,225	1,636	2,228	1,726	*-53%*		1,180	*-39%*	*NB/SB*
4	Blithedale Ave East of Camino Alto	16,926	14,867	14,011	11,649	*-53%*	11,645	9,828	*-105%*	
5	Paradise Dr Between San Clemente & Westward	7,154	12,888	5,482	8,645	*-68%*		6,388	*-102%*	
6	Tamalpais Dr Between Madera & Sausalito	9,613	9,125	7,053	6,799	*-72%*	6,018	5,857	*-117%*	
7	College Ave Between Magnolia & SFD	7,478	7,162	4,734	4,896	*-102%*		4,500	*-59%*	
8	Bon Air Rd Between Magnolia & SFD	7,460	6,817	4,579	4,090	*-137%*		3,344	*-104%*	
9	Wolfe Grade Between SFD & D St	6,684	4,872		3,052	*-60%*	2,913	2,275	*-280%*	*NB/SB*
10	SFD Blvd Between Butterfield Rd & Red Hill Ave	13,733	17,798	12,072	15,160	*-28%*	11,415	13,776	*-46%*	
11	3rd St Between US 101 & Point San Pedro Rd		13,754		16,913	*19%*		17,774	*23%*	
12	2nd St Between US 101 & Point San Pedro Rd	21,747		17,996		*-21%*	15,594		*-39%*	
13	Lincoln Ave Between Mission Ave & US 101	5,280	6,988	3,485	5,515	*-59%*	3,173	4,385	*-107%*	NB/SB
14	Manual T Frietas Between Las Gallinas & Northgate	10,636	11,538	8,631	8,791	*-54%*		7,820	*-48%*	
15	Las Gallinas Between Manual T Frietas & Lucas Valley	3,580	3,556	2,603	2,818	*-61%*		1,884	*-89%*	NB/SB
16	Main Gate Rd Between Nave Dr & C St	3,684	3,330	2,332	2,158	*-117%*		1,868	*-78%*	
17	Ignacio Blvd Between Alameda Del Prado & Entrada Dr	8,803	7,257	6,653	5,925	*-59%*		5,135	*-41%*	
18	SR131/Tiburon Blvd Between Strawberry & Trestle	14,058	14,021	12,590	12,959	*-20%*		11,391	*-23%*	
19	Miller Ave Between Reed St & Camino Alto	10,296	10,343	9,376	9,615	*-17%*		7,338	*-41%*	

*Where total ADT or bi directional numbers are not available, directional comparisons of ADT were made.

CMP Roadway Segments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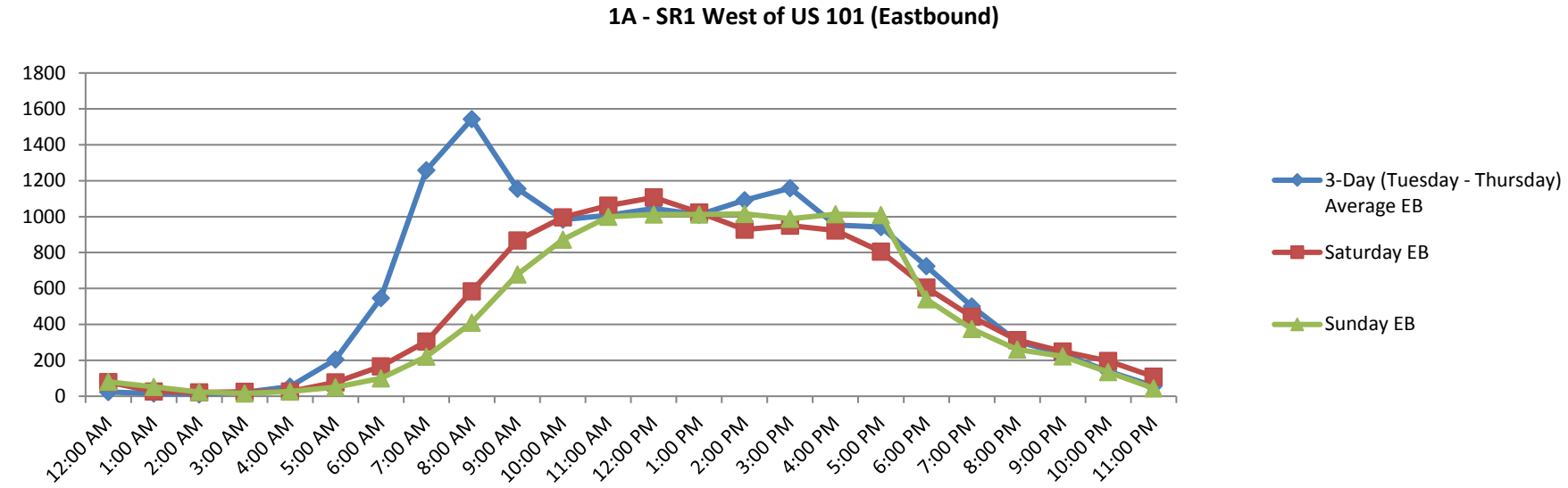
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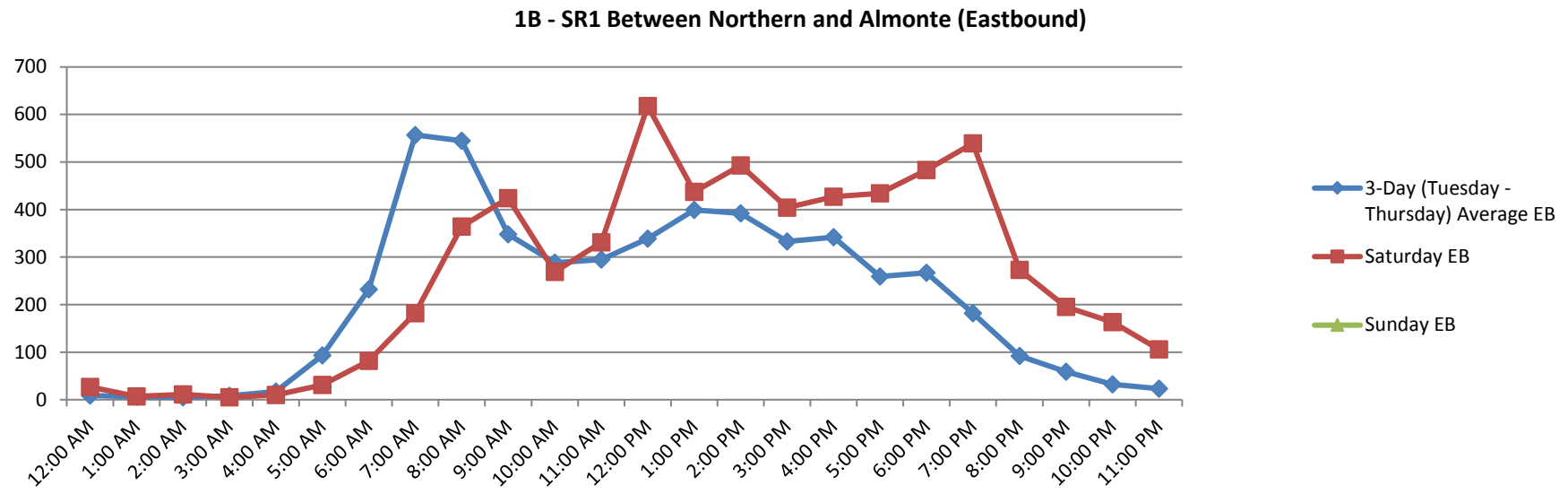
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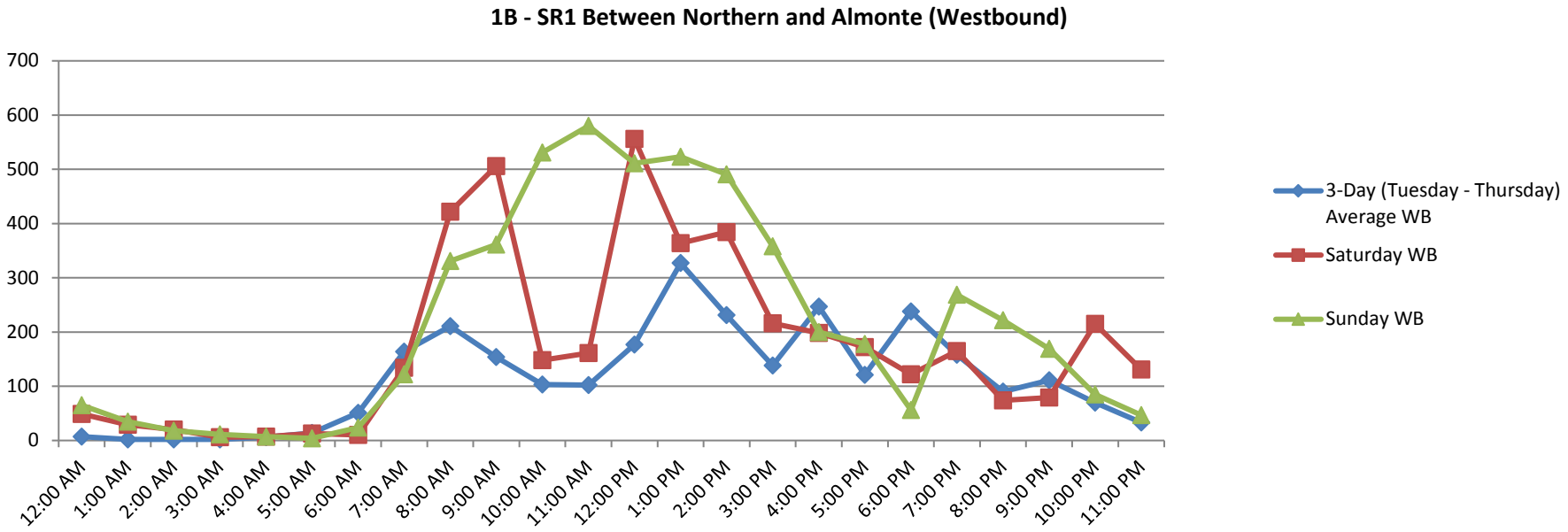
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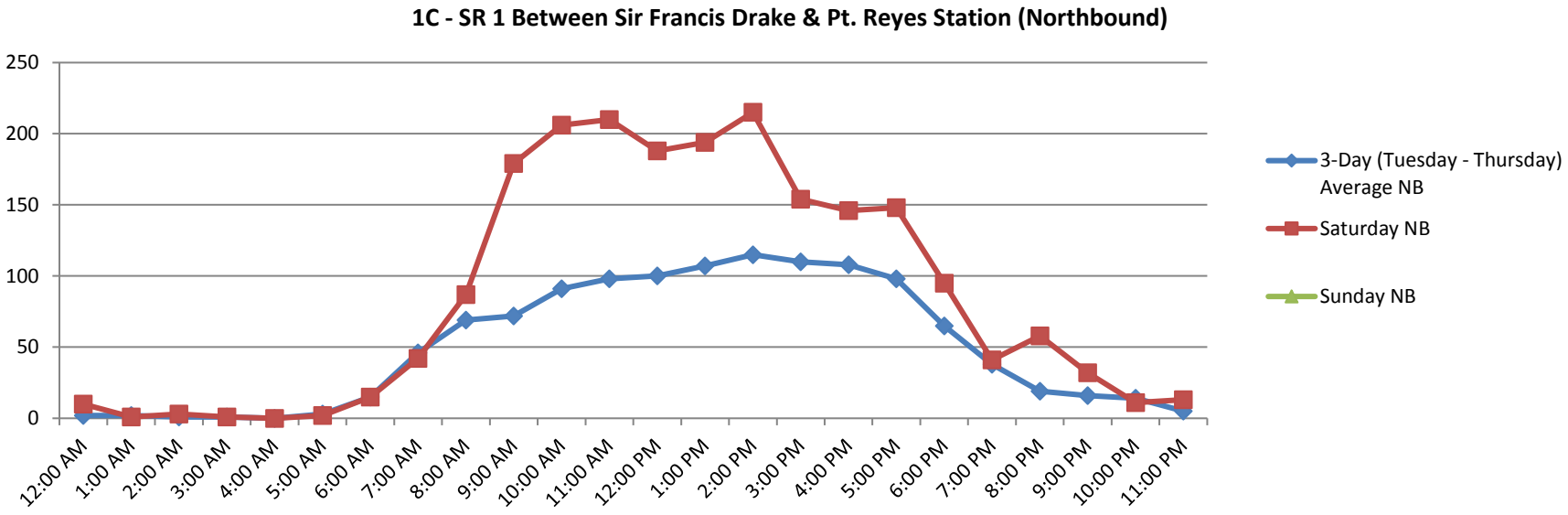
1C - SR 1 Between Sir Francis Drake & Pt. Reyes Station (Northbound)
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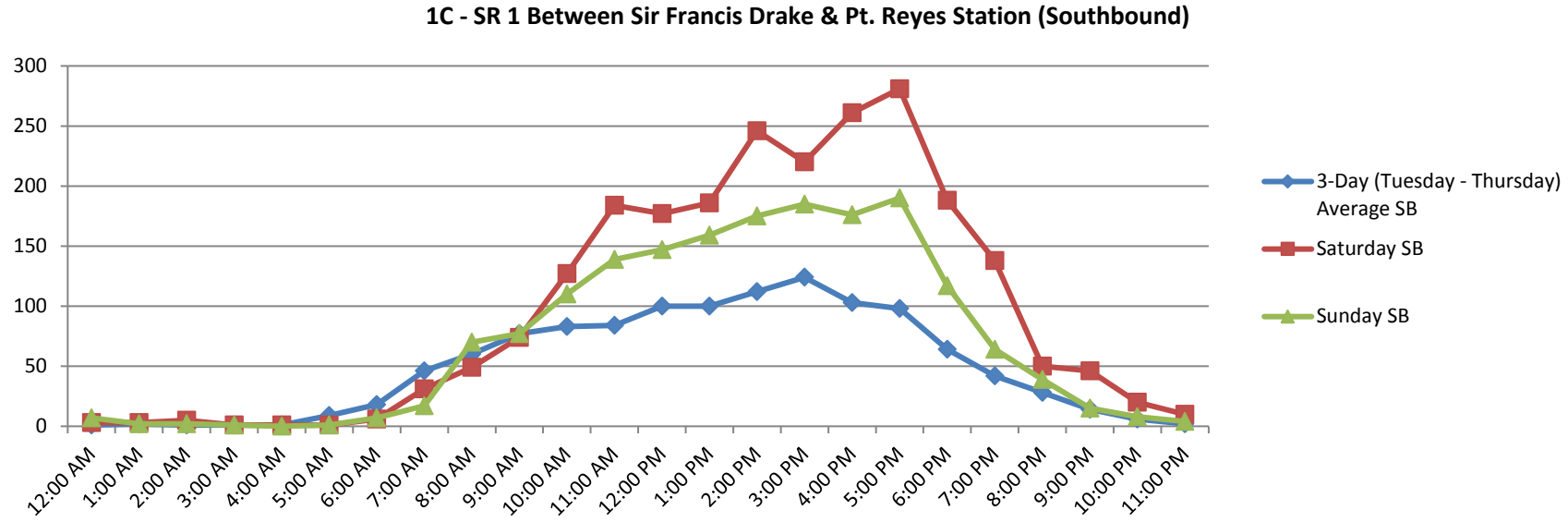
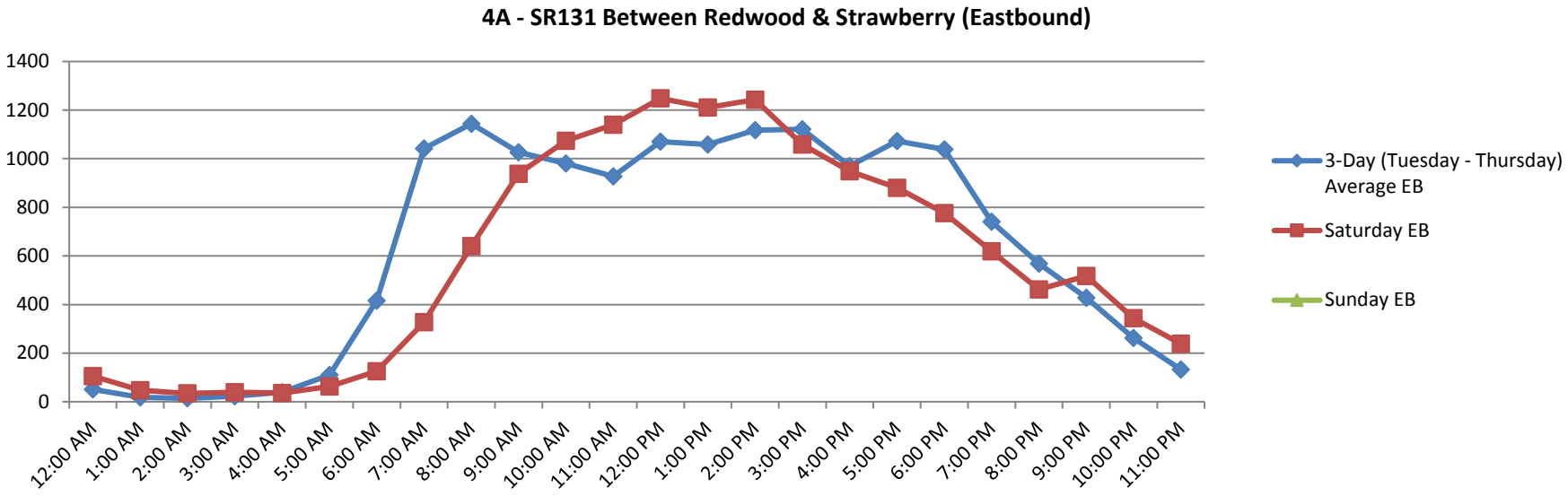
Saturday NB
Sunday NB


1C - SR 1 Between Sir Francis Drake & Pt. Reyes Station (Southbound)
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


4A - SR131 Between Redwood & Strawberry (Eastbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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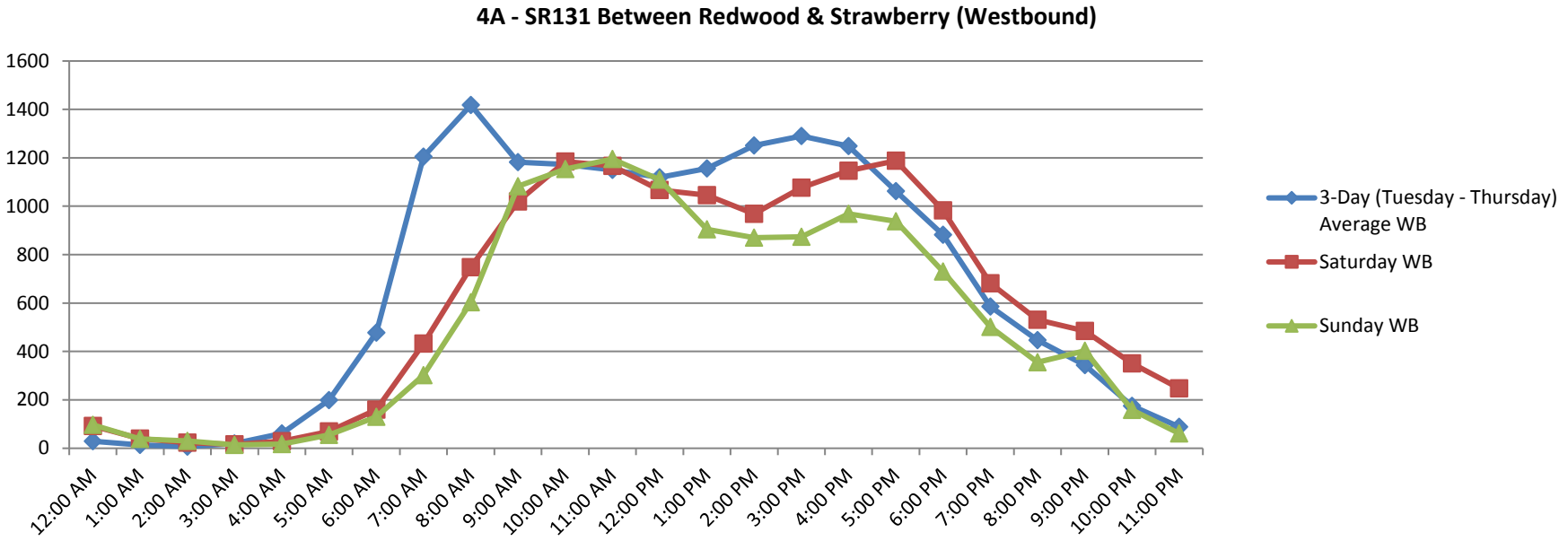
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


4A - SR131 Between Redwood & Strawberry (Westbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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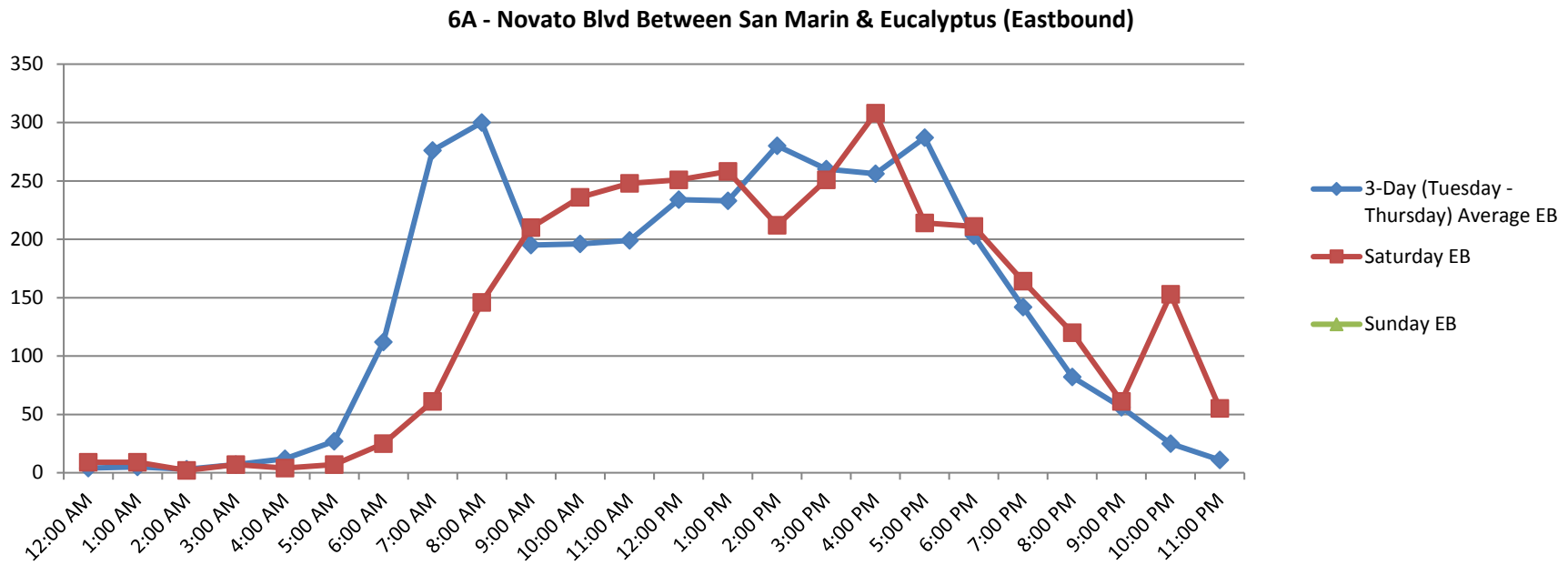
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


6A - Novato Blvd Between San Marin & Eucalyptus (Eastbound)
350
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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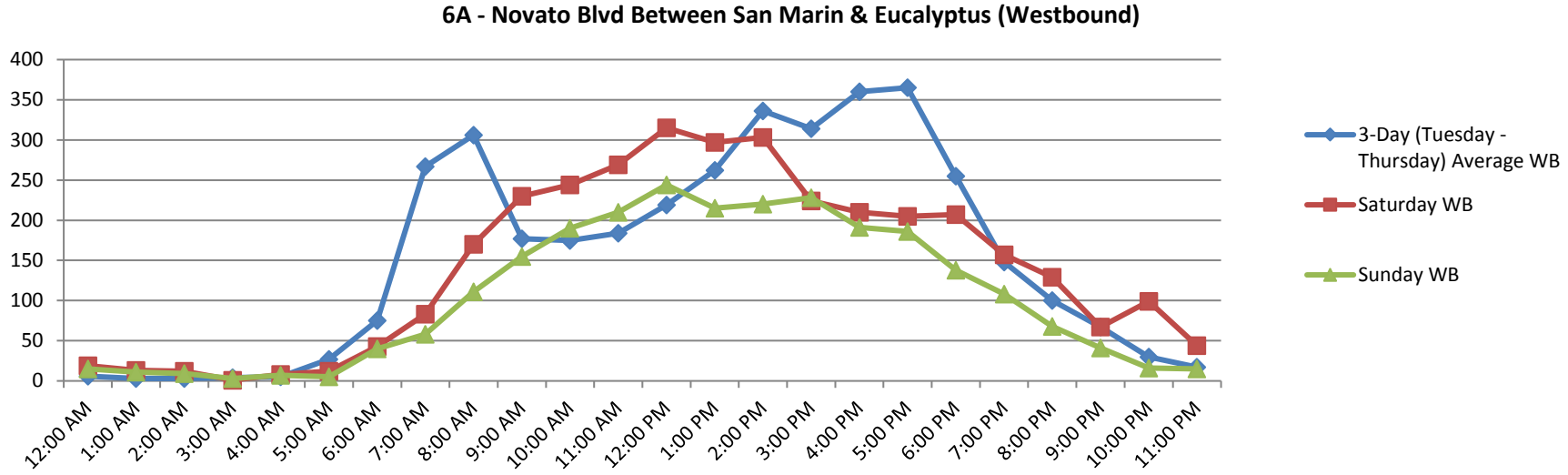
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


6A - Novato Blvd Between San Marin & Eucalyptus (Westbound)
400
350
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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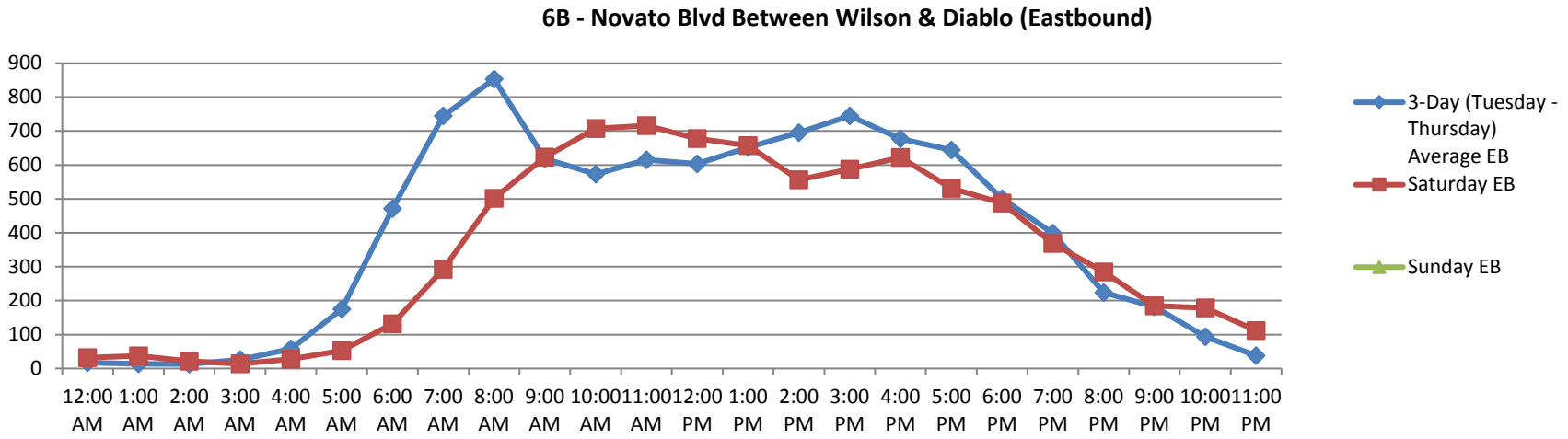
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


6B - Novato Blvd Between Wilson & Diablo (Eastbound)
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
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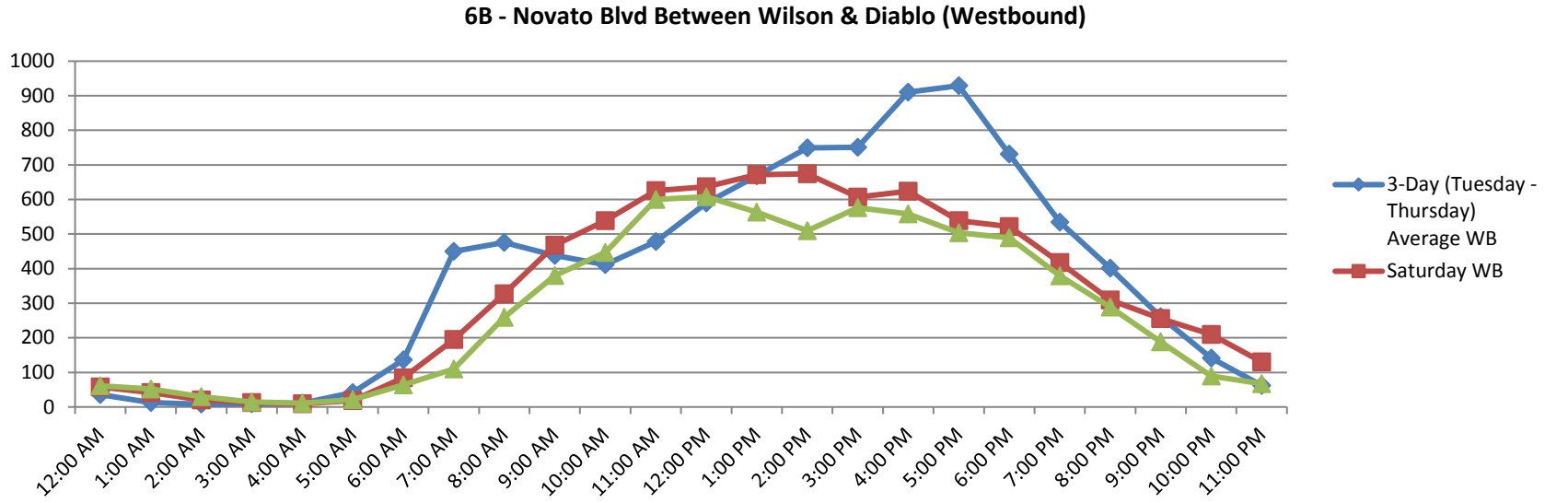
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


6B - Novato Blvd Between Wilson & Diablo (Westbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
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11:00 AM
12:00 PM
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4:00 PM
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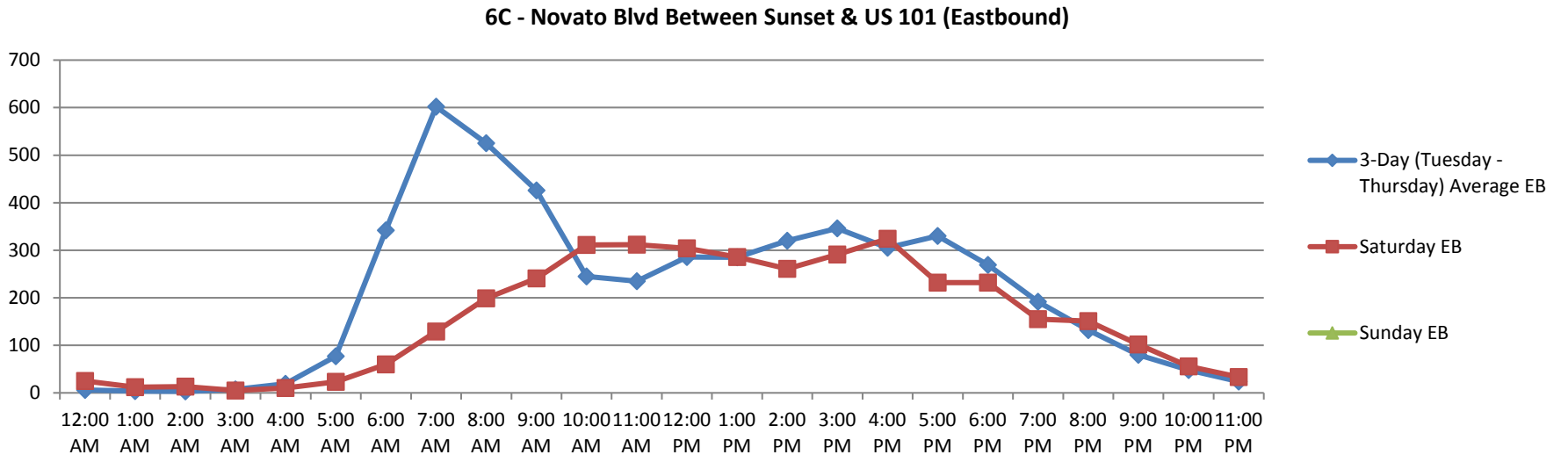
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB


6C - Novato Blvd Between Sunset & US 101 (Eastbound)
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
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4:00 PM
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6:00 PM
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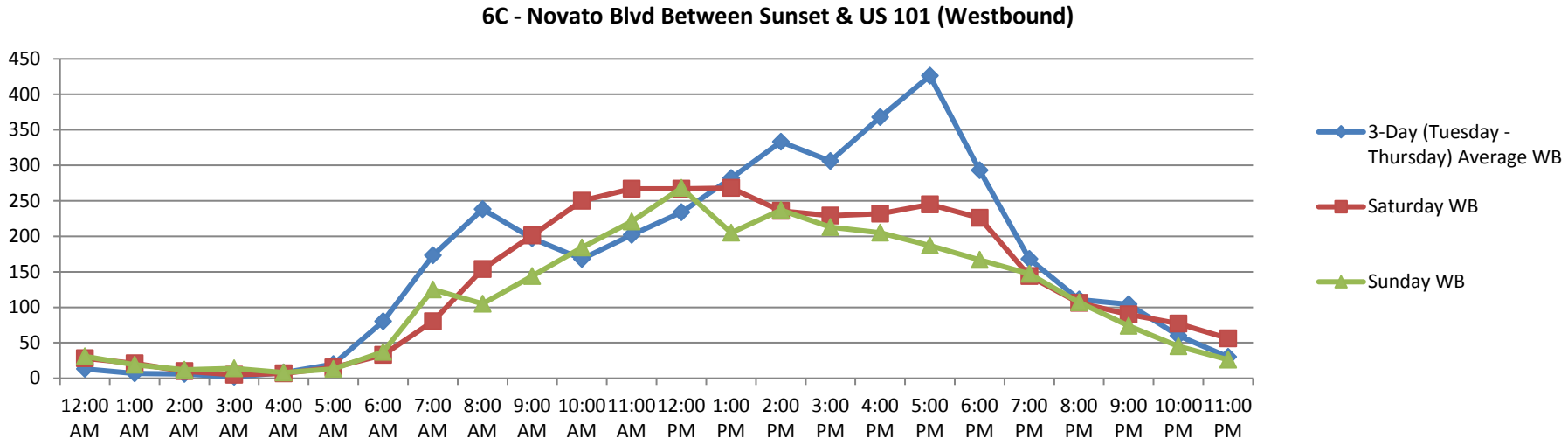
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


6C - Novato Blvd Between Sunset & US 101 (Westbound)
450
400
350
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
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9:00 AM
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11:00 AM
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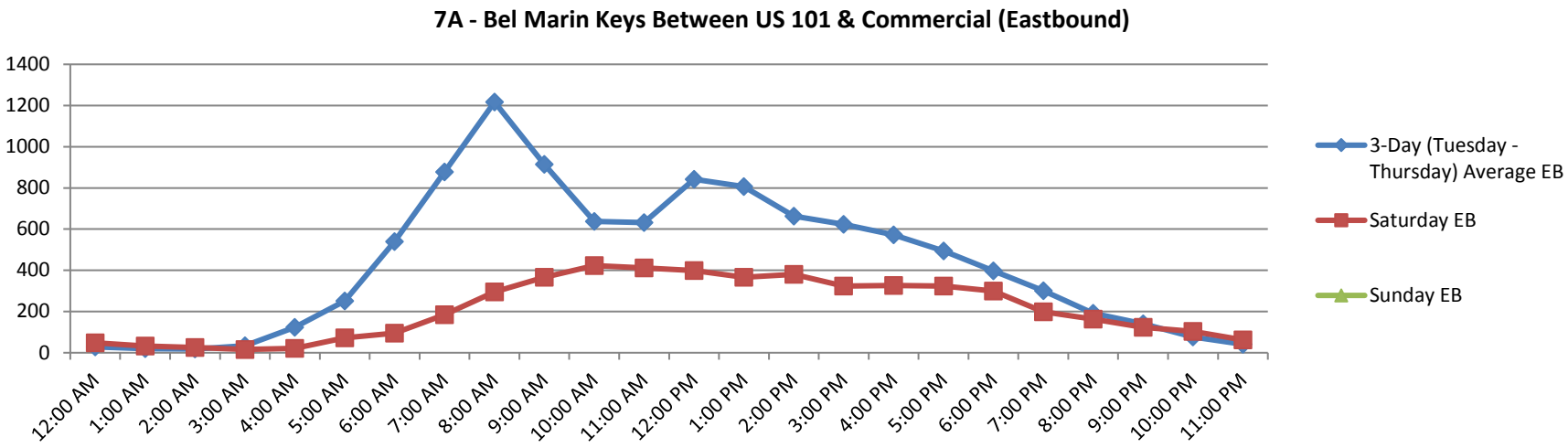
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


7A - Bel Marin Keys Between US 101 & Commercial (Eastbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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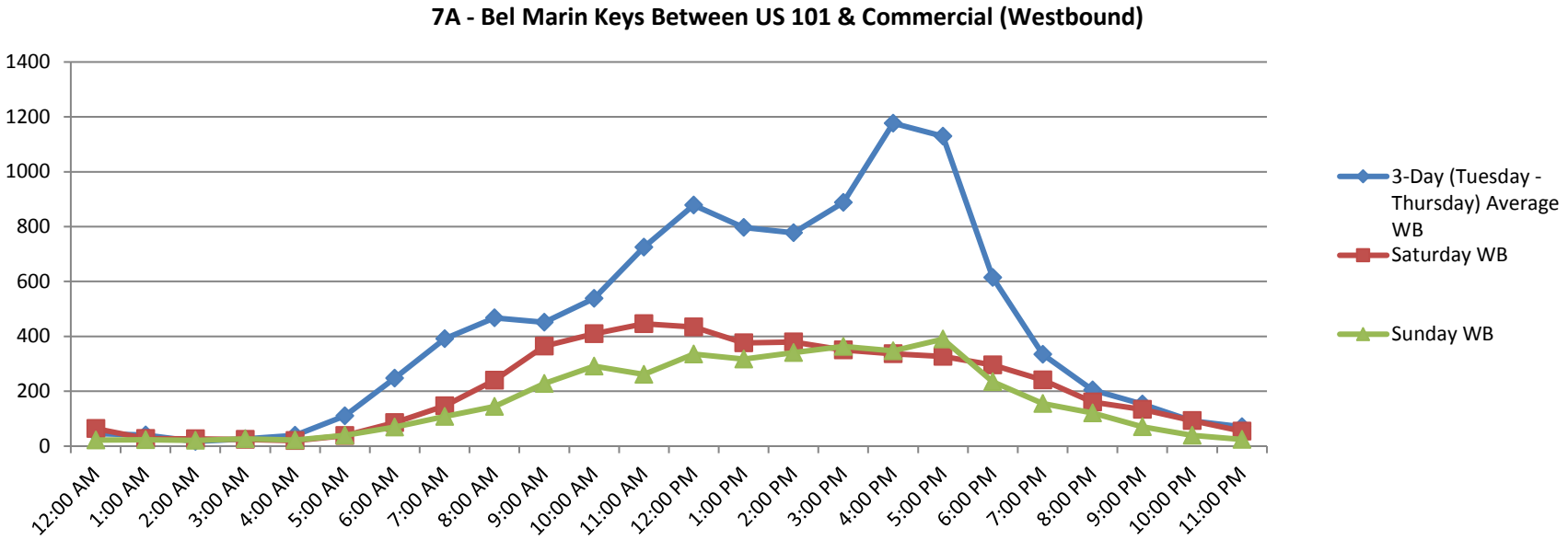
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


7A - Bel Marin Keys Between US 101 & Commercial (Westbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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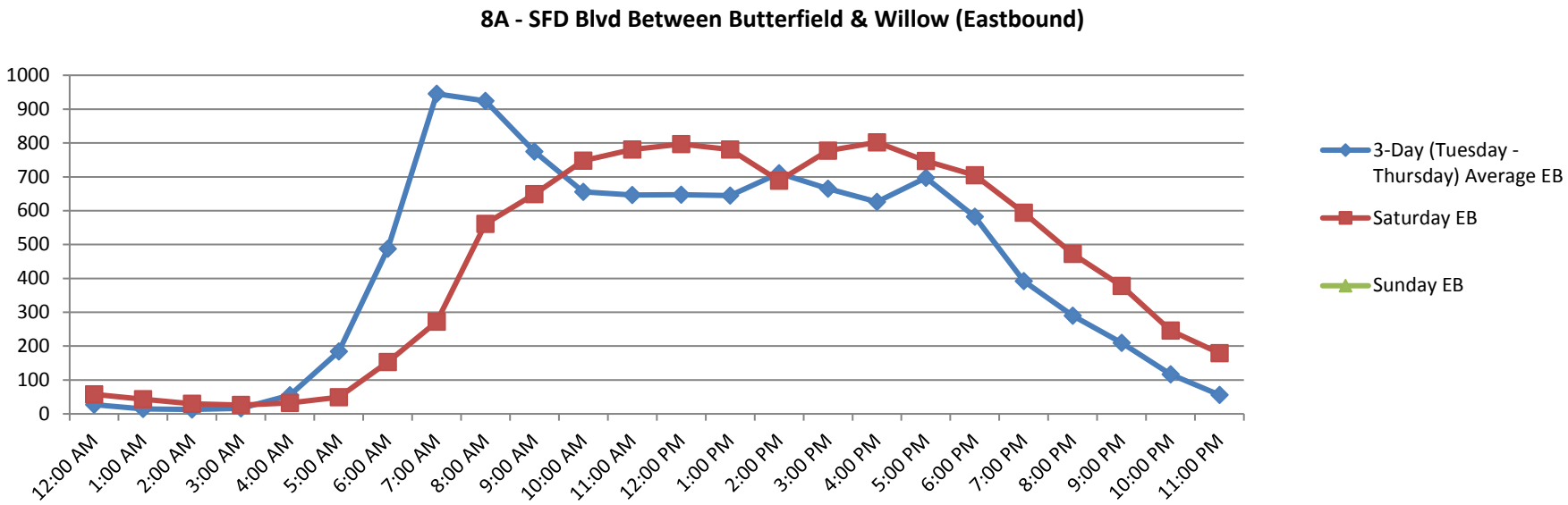
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


8A - SFD Blvd Between Butterfield & Willow (Eastbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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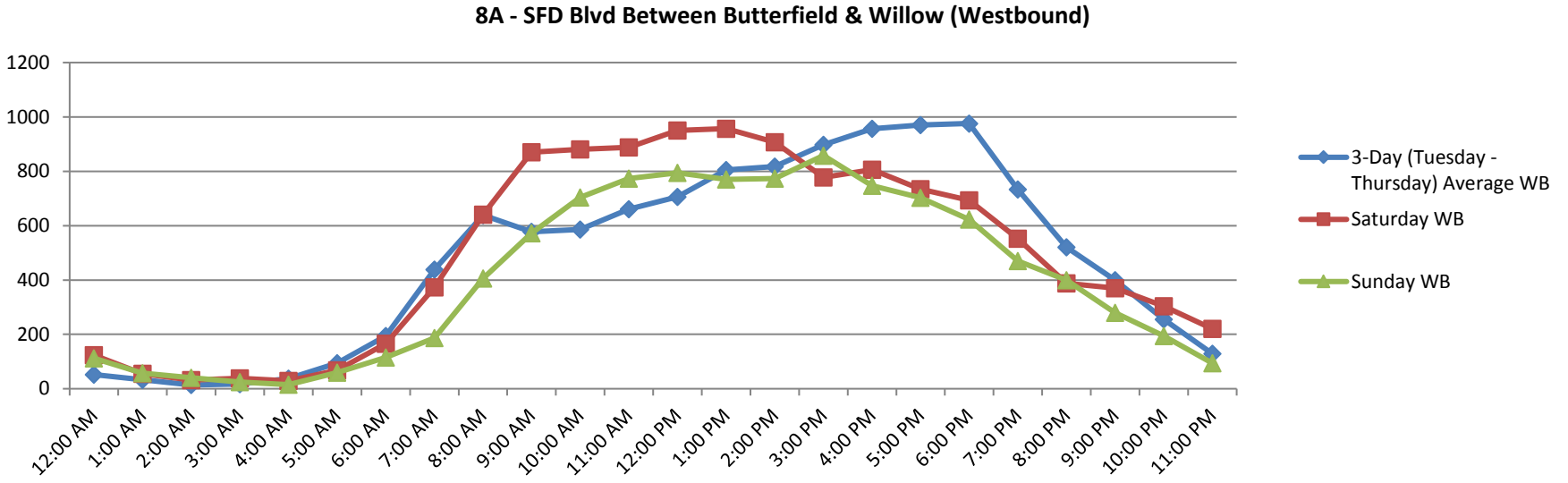
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


8A - SFD Blvd Between Butterfield & Willow (Westbound)
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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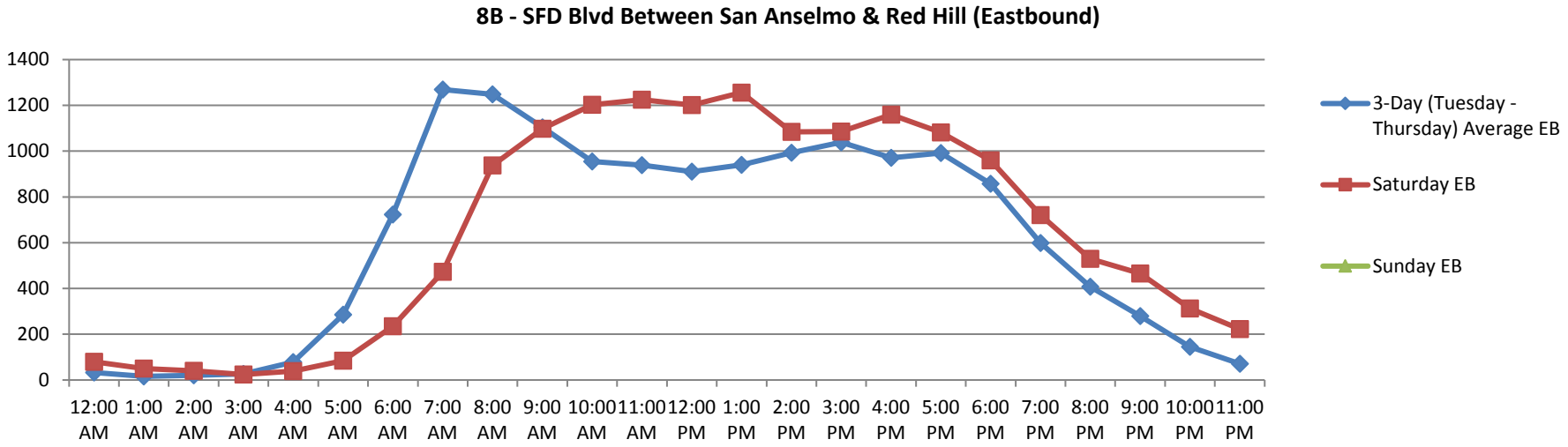
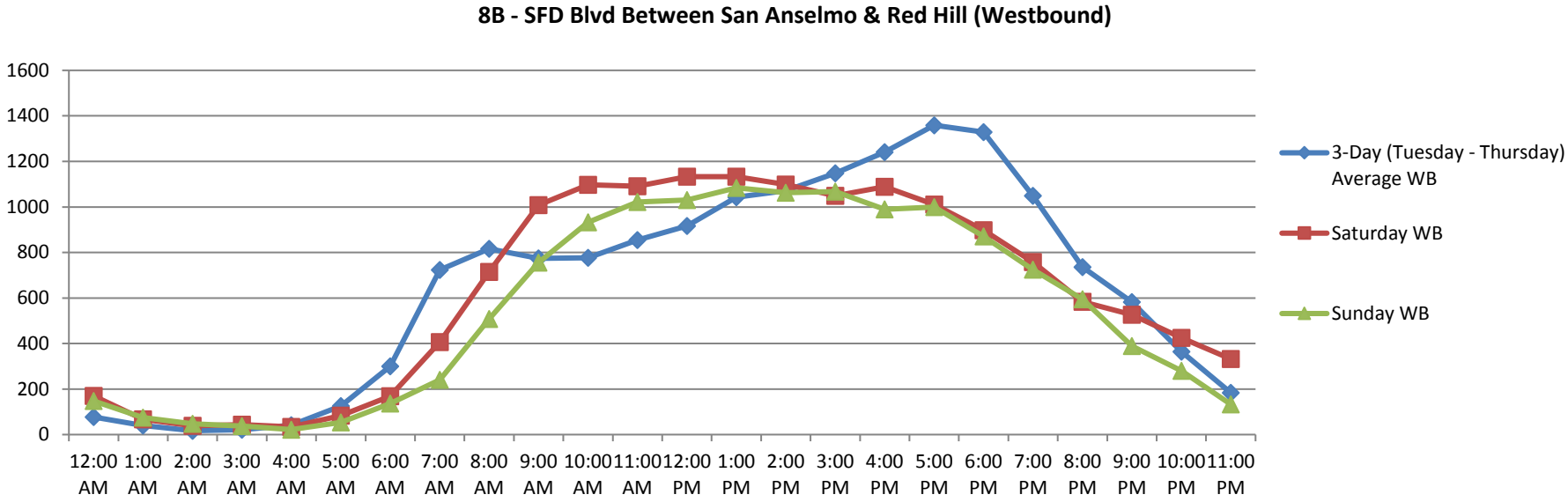
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


8B - SFD Blvd Between San Anselmo & Red Hill (Eastbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


8B - SFD Blvd Between San Anselmo & Red Hill (Westbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
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12:00 PM
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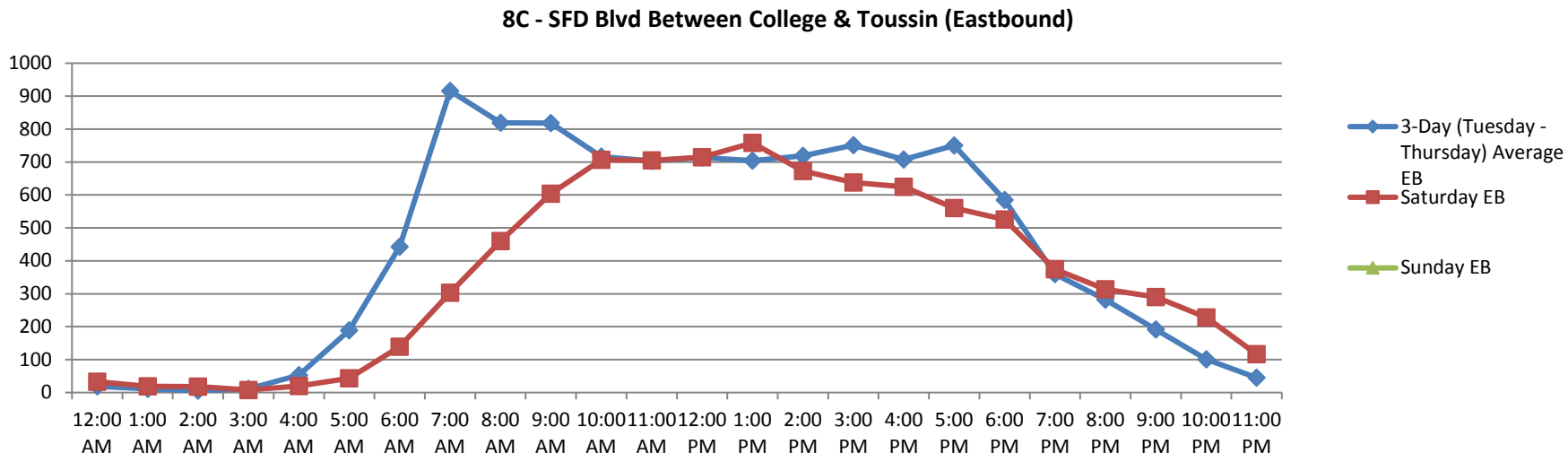
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


8C - SFD Blvd Between College & Toussin (Eastbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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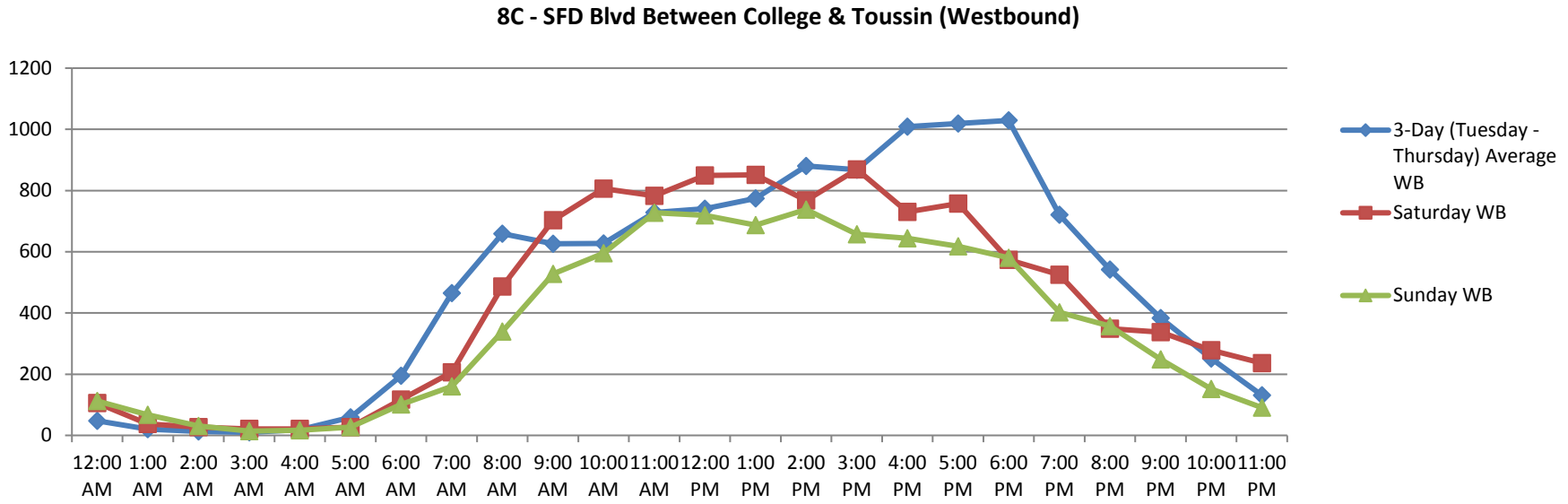
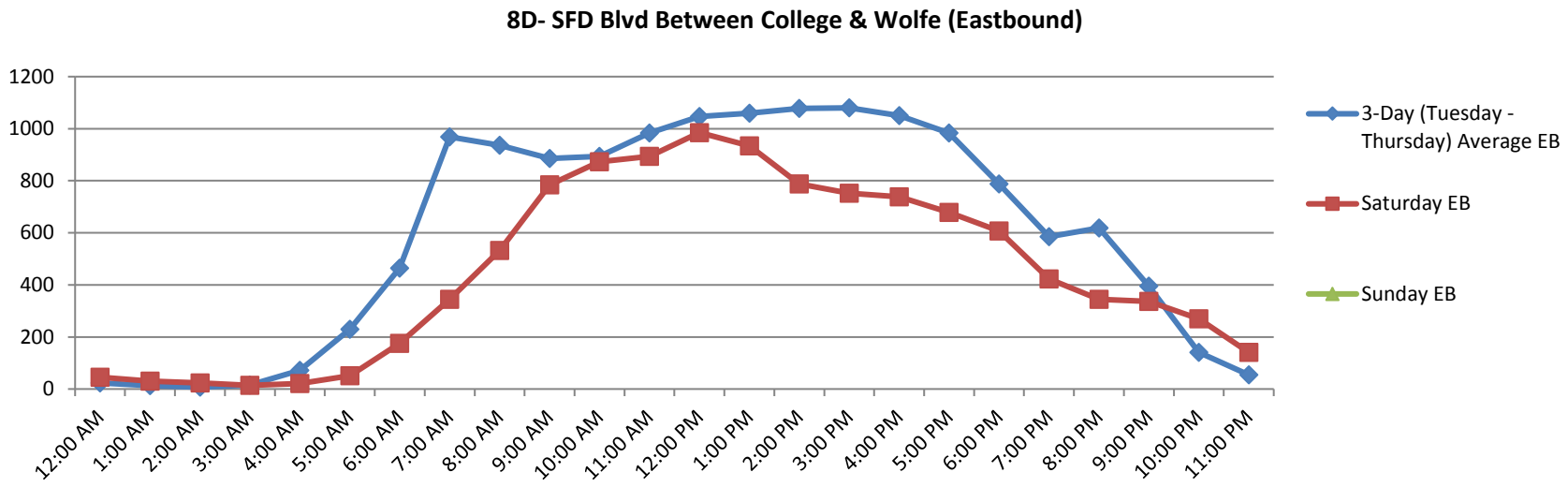
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


8C - SFD Blvd Between College & Toussin (Westbound)
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


8D- SFD Blvd Between College & Wolfe (Eastbound)
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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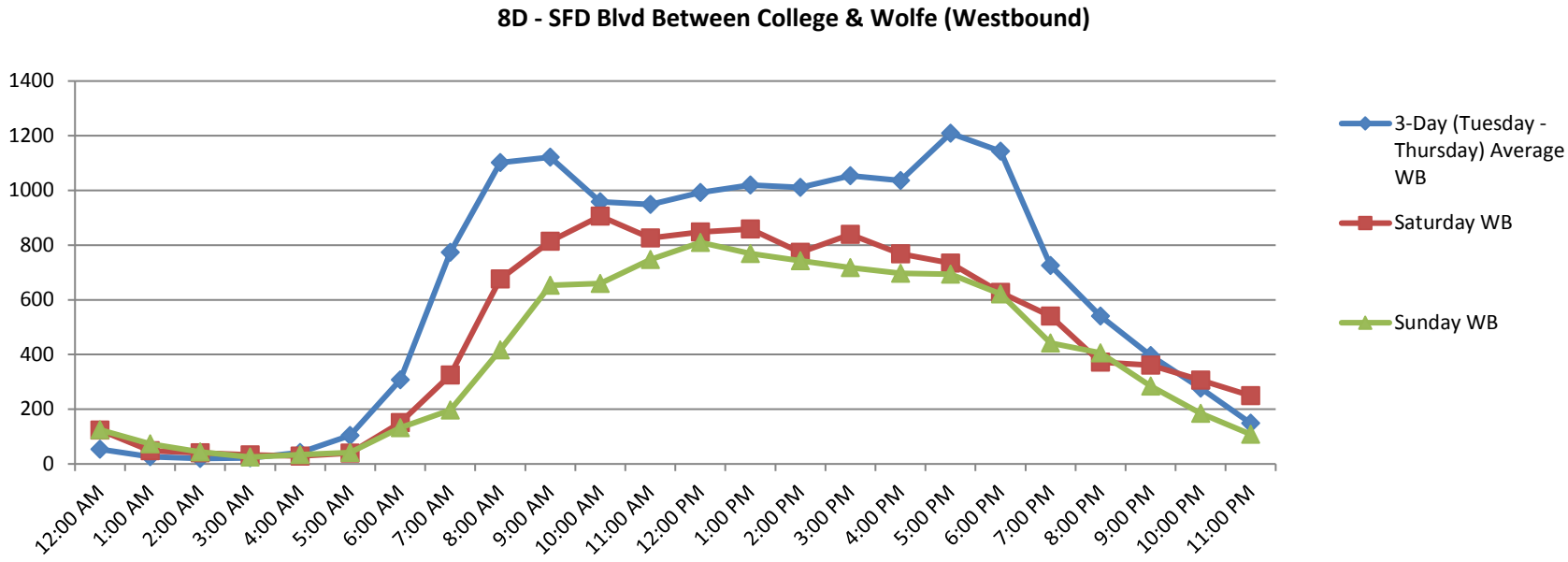
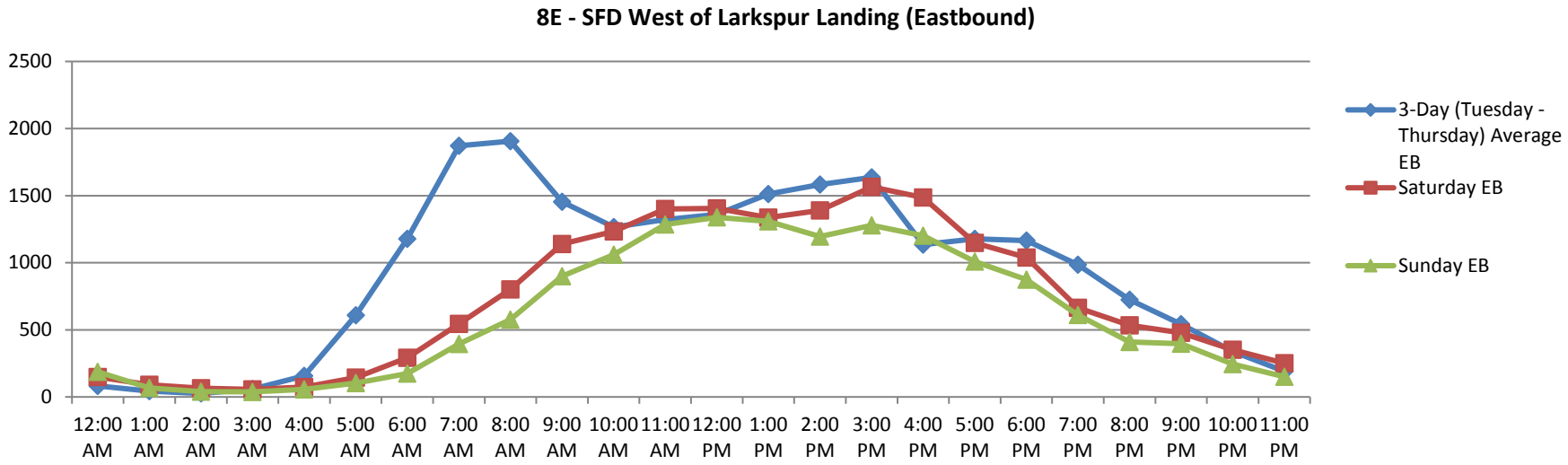
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


8D - SFD Blvd Between College & Wolfe (Westbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


8E - SFD West of Larkspur Landing (Eastbound)
2500
2000
1500
1000
500
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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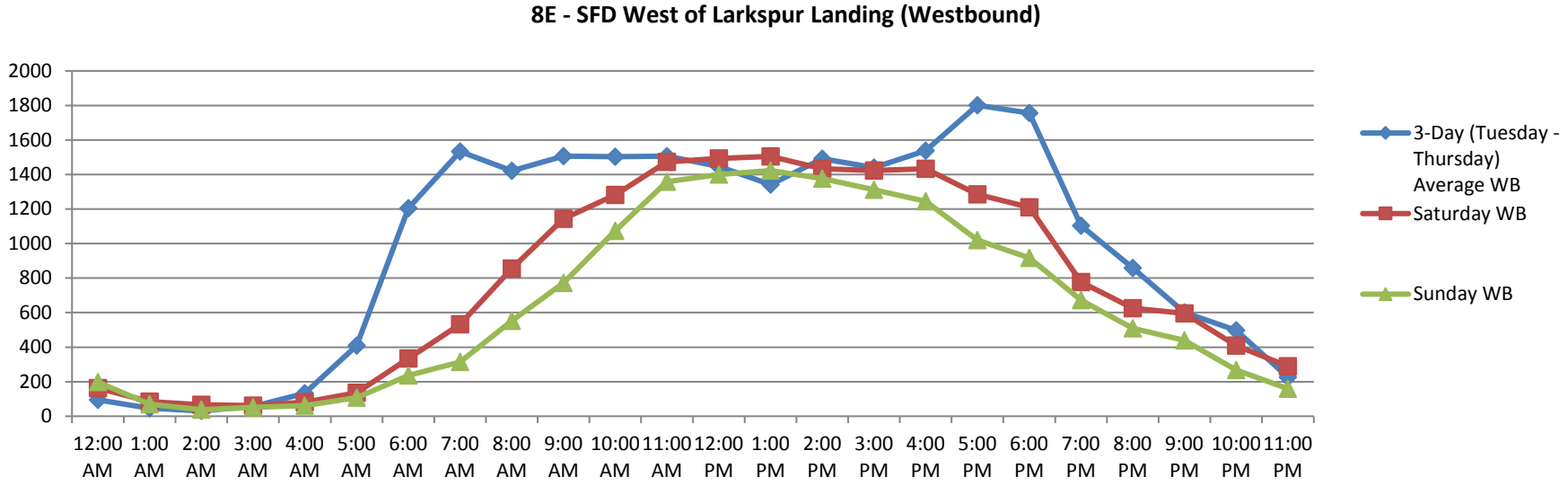
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


8E - SFD West of Larkspur Landing (Westbound)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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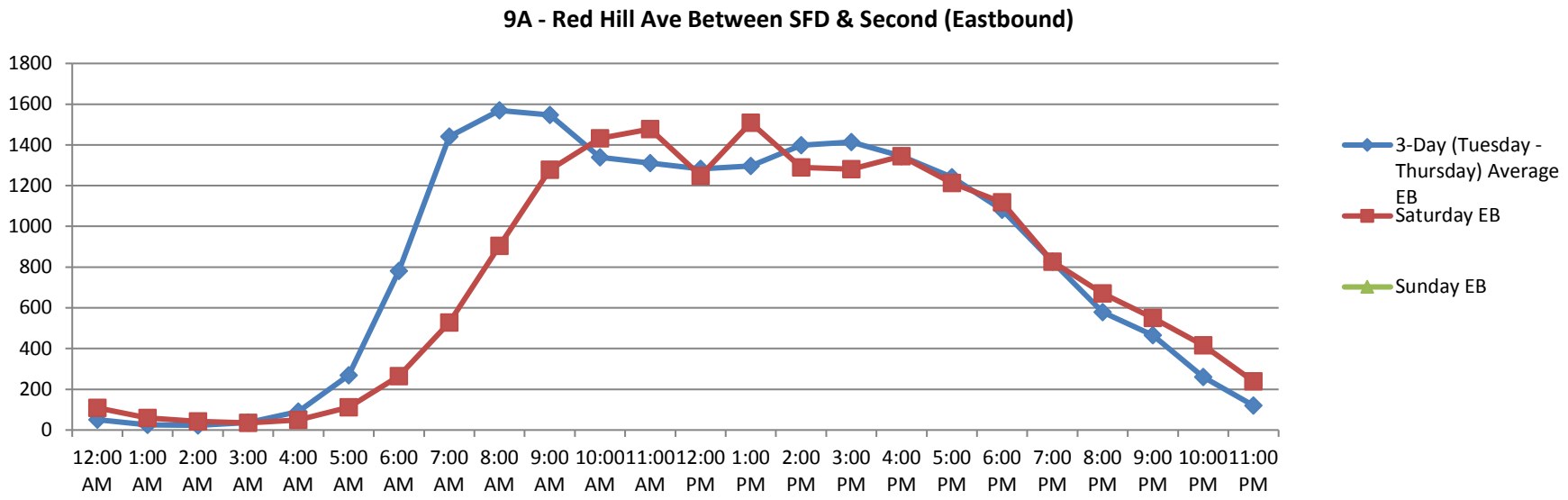
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


9A - Red Hill Ave Between SFD & Second (Eastbound)
1800
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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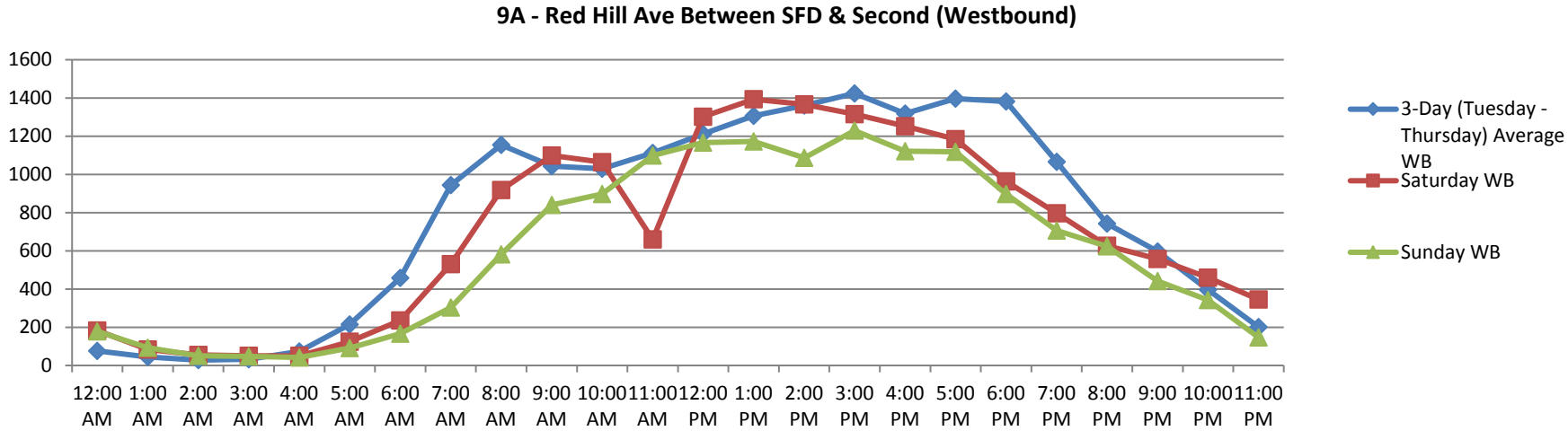
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


9A - Red Hill Ave Between SFD & Second (Westbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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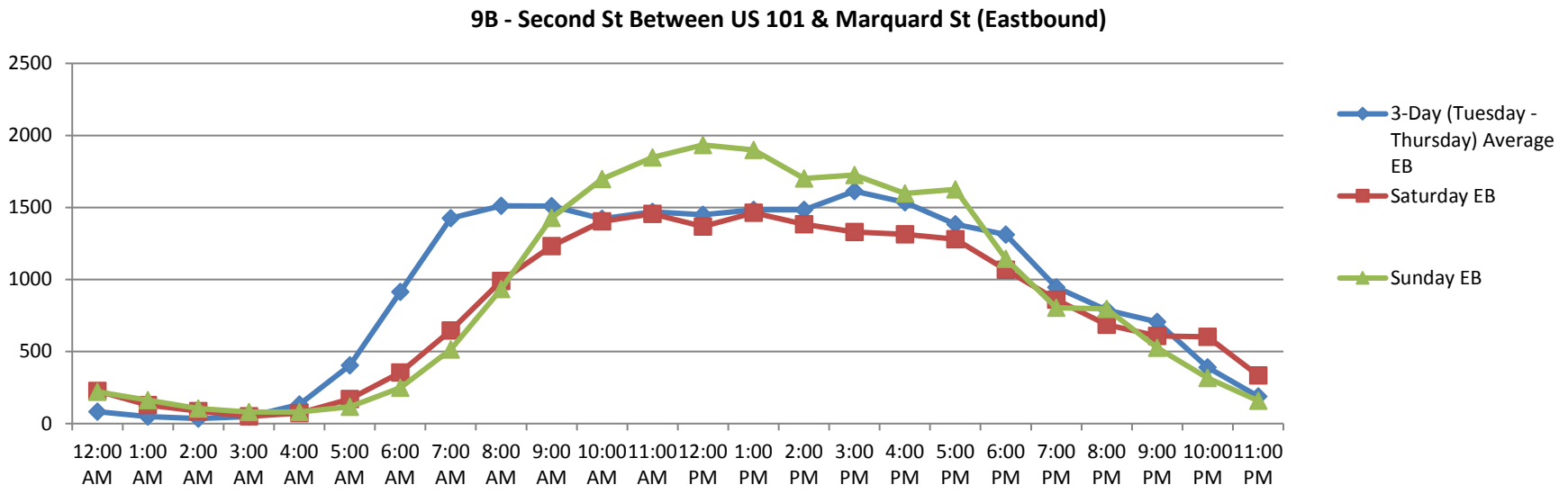
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


9B - Second St Between US 101 & Marquard St (Eastbound)
2500
2000
1500
1000
500
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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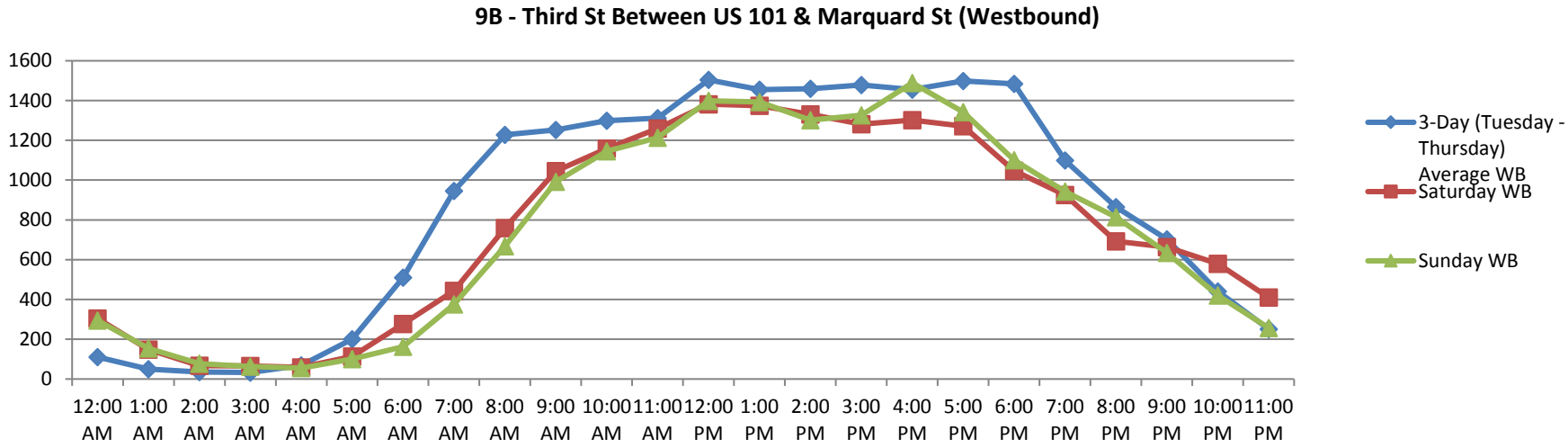
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


9B - Third St Between US 101 & Marquard St (Westbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
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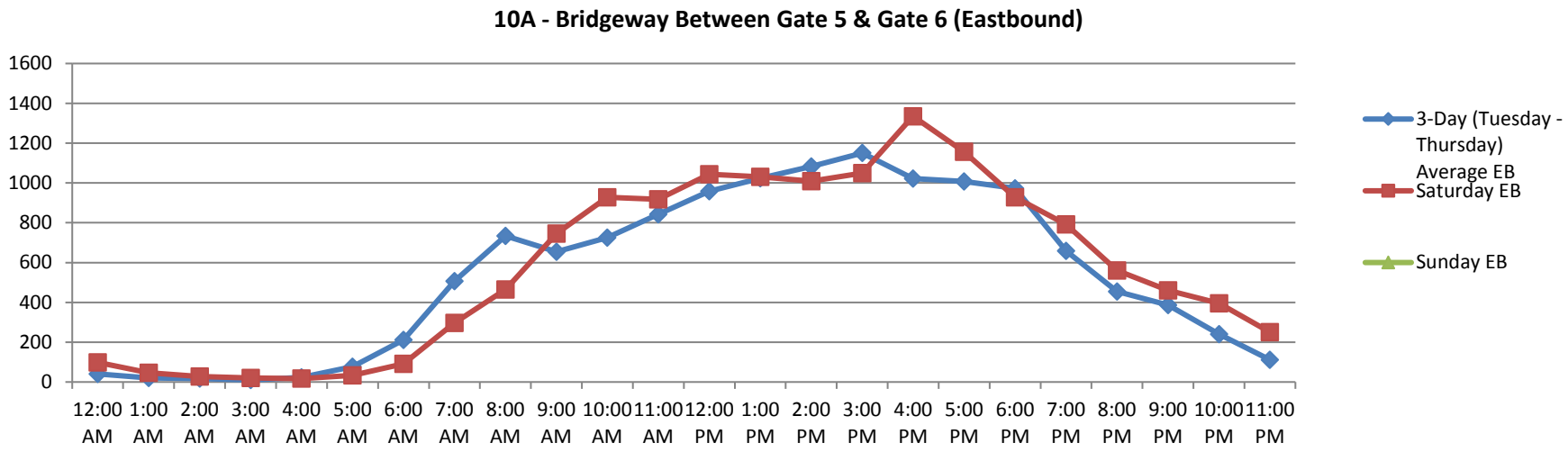
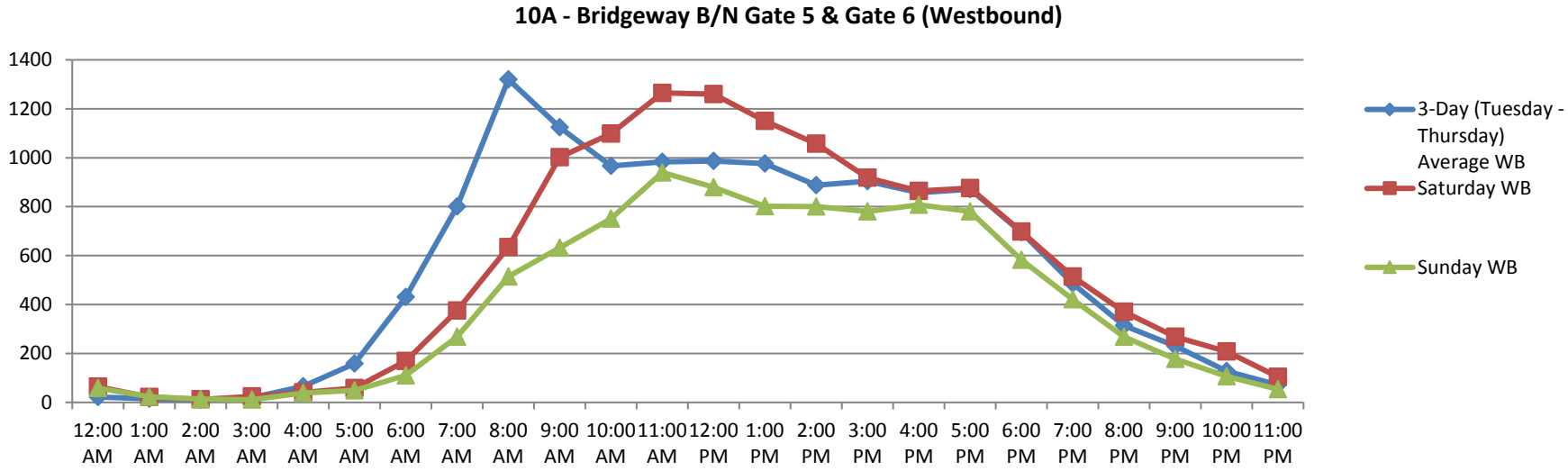
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


10A - Bridgeway Between Gate 5 & Gate 6 (Eastbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


10A - Bridgeway B/N Gate 5 & Gate 6 (Westbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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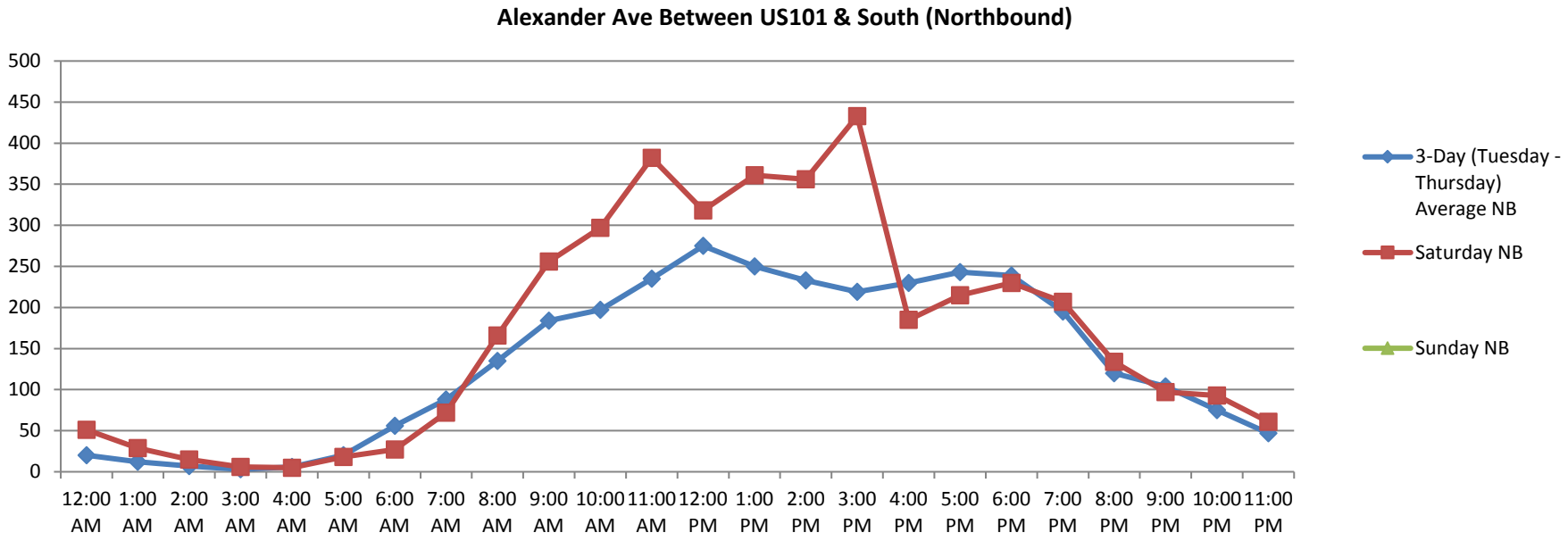
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB

New Count Locations


Alexander Ave Between US101 & South (Northbound)
500
450
400
350
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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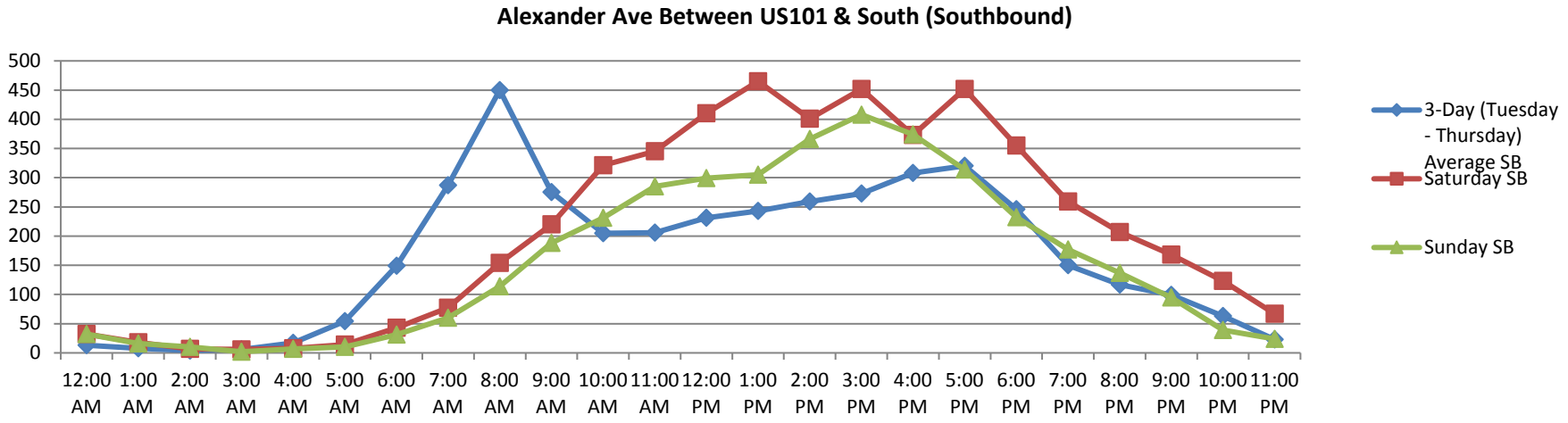
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


Alexander Ave Between US101 & South (Southbound)
500
450
400
350
300
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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4:00 PM
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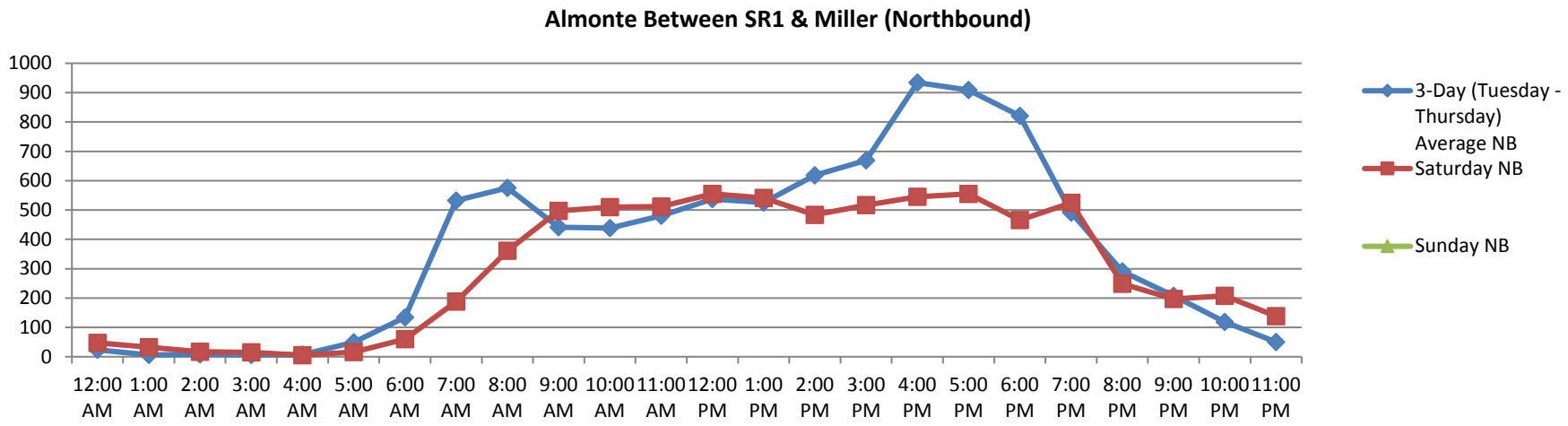
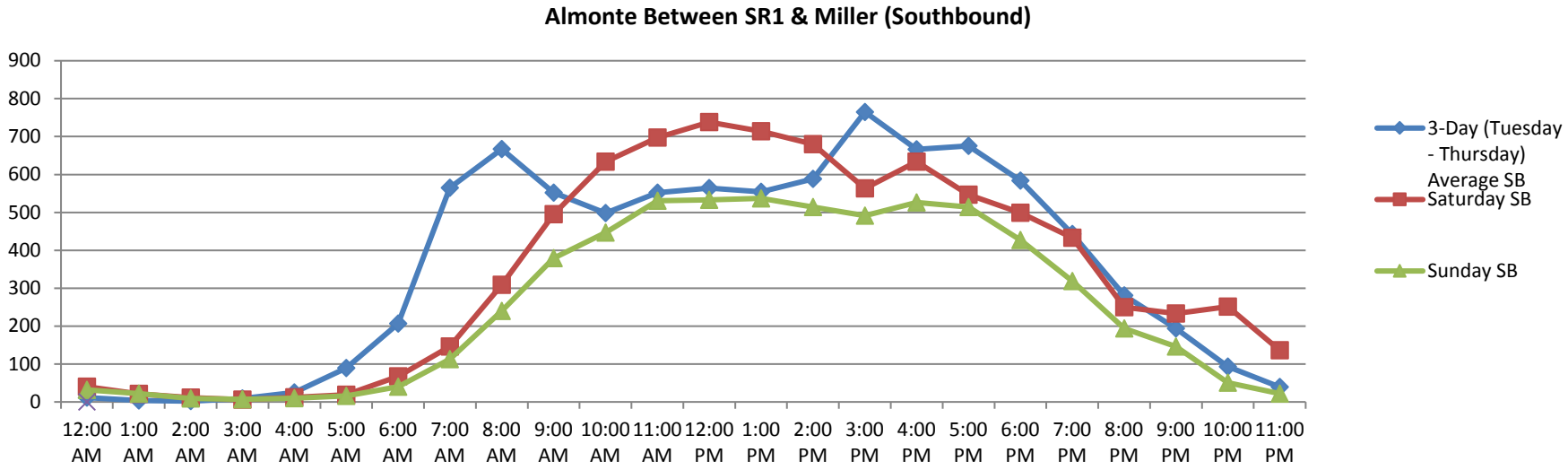
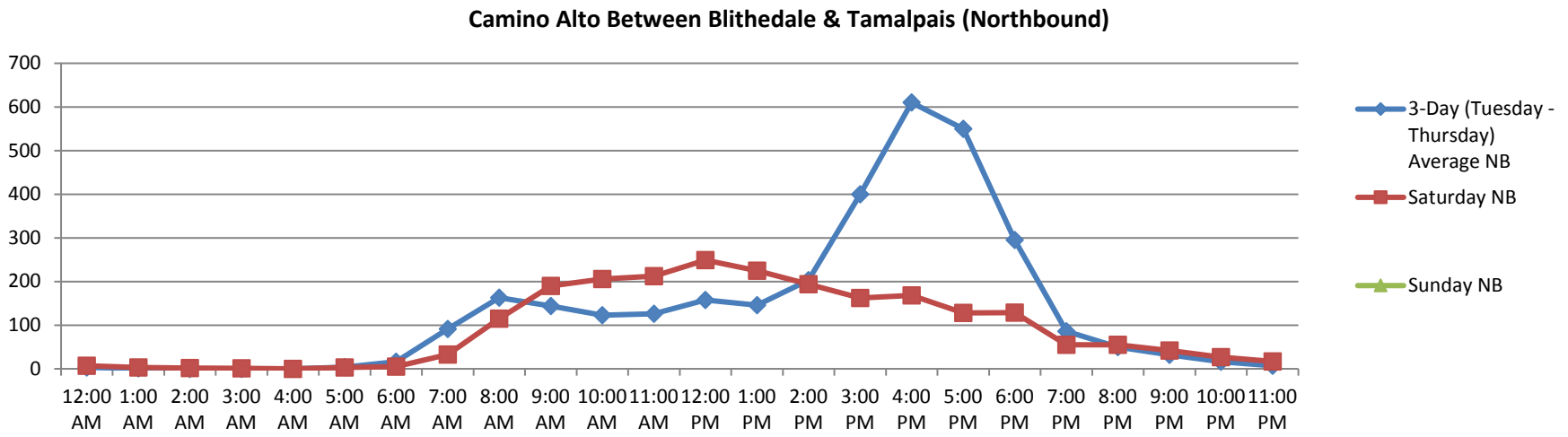
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


Almonte Between SR1 & Miller (Northbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


Almonte Between SR1 & Miller (Southbound)
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


Camino Alto Between Blithedale & Tamalpais (Northbound)
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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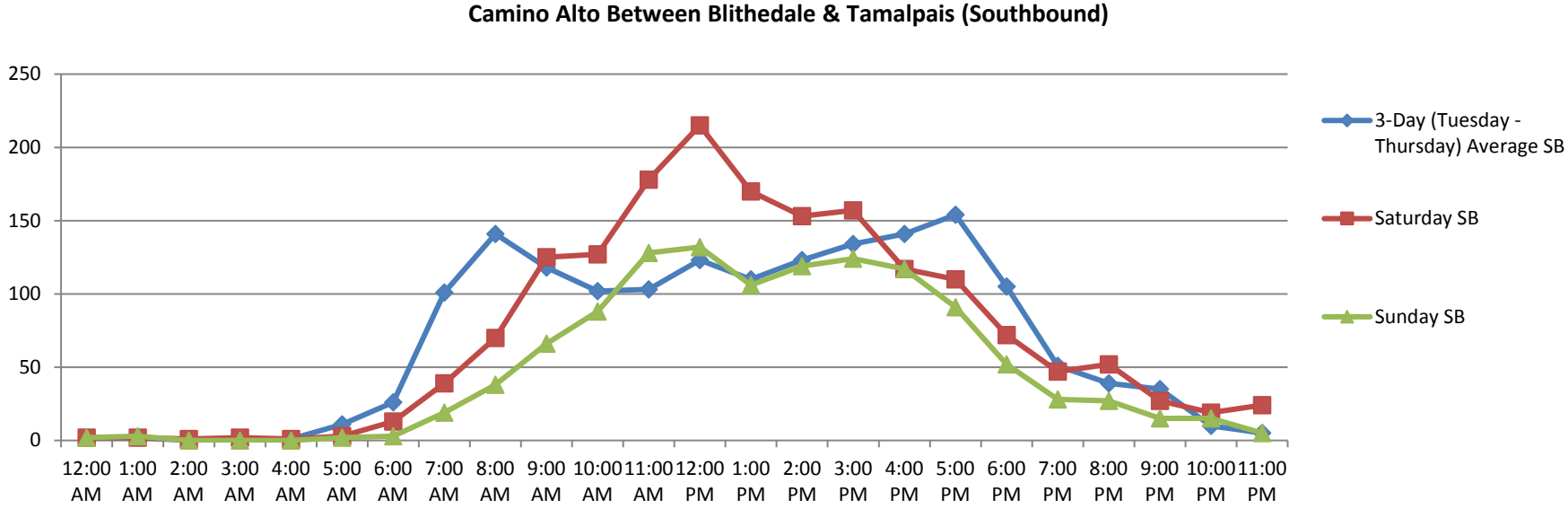
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


Camino Alto Between Blithedale & Tamalpais (Southbound)
250
200
150
100
50
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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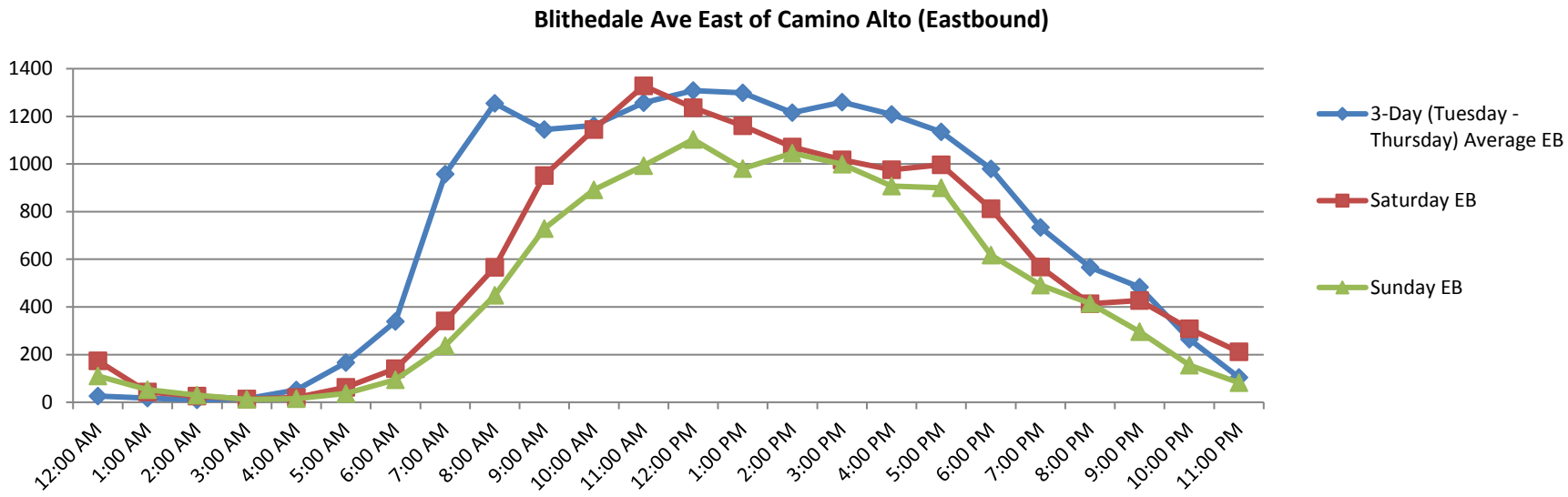
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


Blithedale Ave East of Camino Alto (Eastbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
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11:00 AM
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4:00 PM
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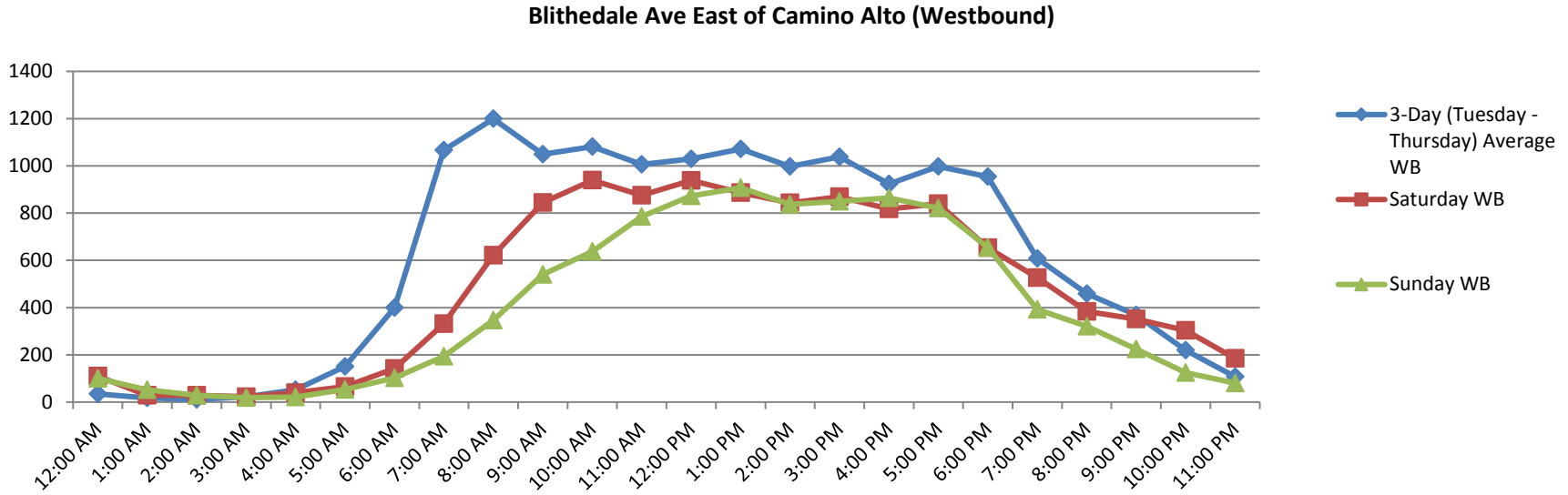
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


Blithedale Ave East of Camino Alto (Westbound)
1400
1200
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800
600
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12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
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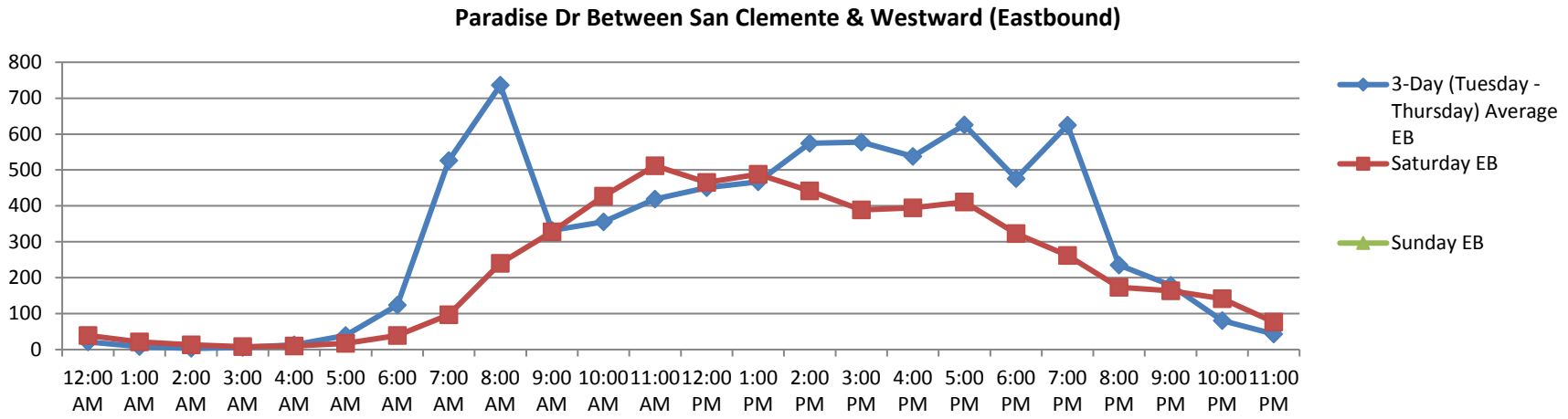
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


Paradise Dr Between San Clemente & Westward (Eastbound)
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
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4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
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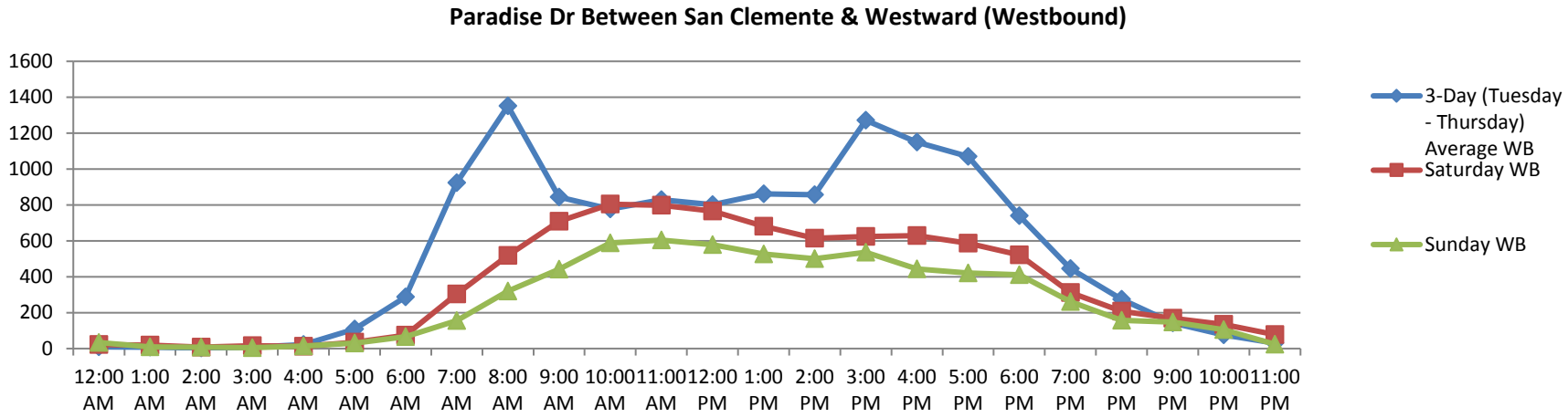
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


Paradise Dr Between San Clemente & Westward (Westbound)
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
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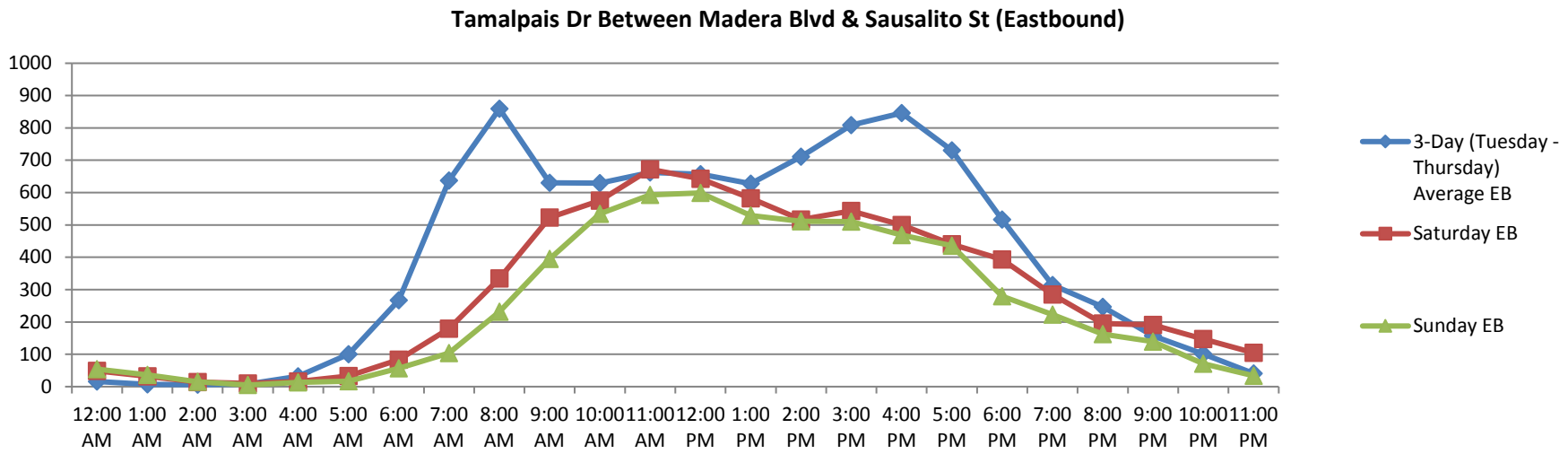
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


Tamalpais Dr Between Madera Blvd & Sausalito St (Eastbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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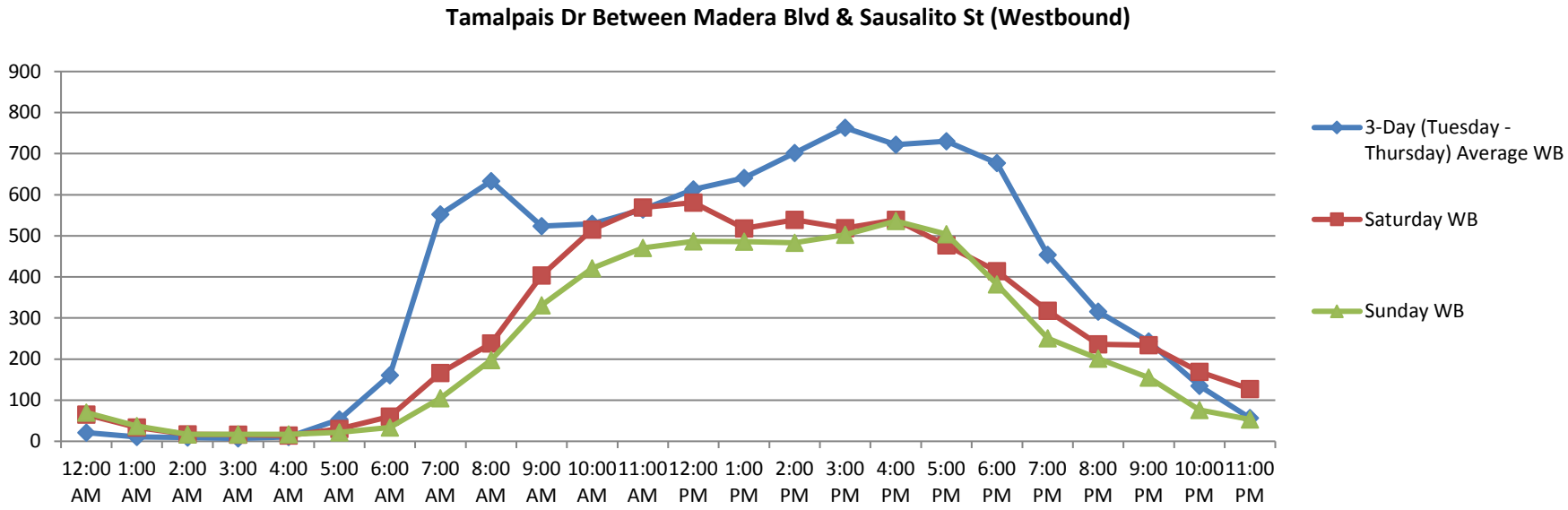
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


Tamalpais Dr Between Madera Blvd & Sausalito St (Westbound)
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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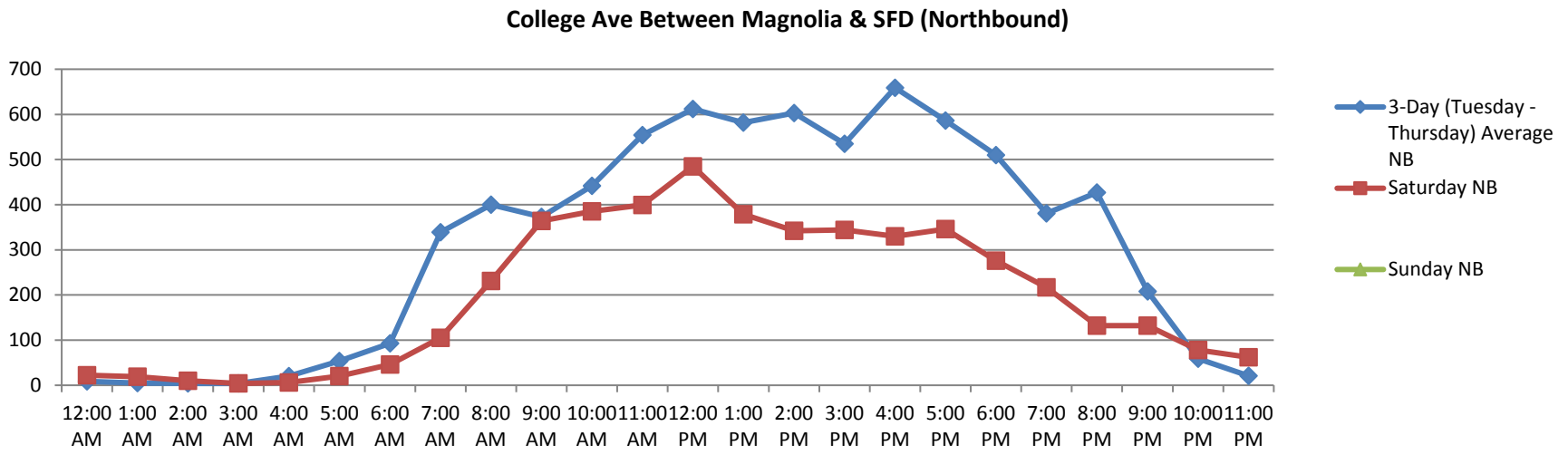
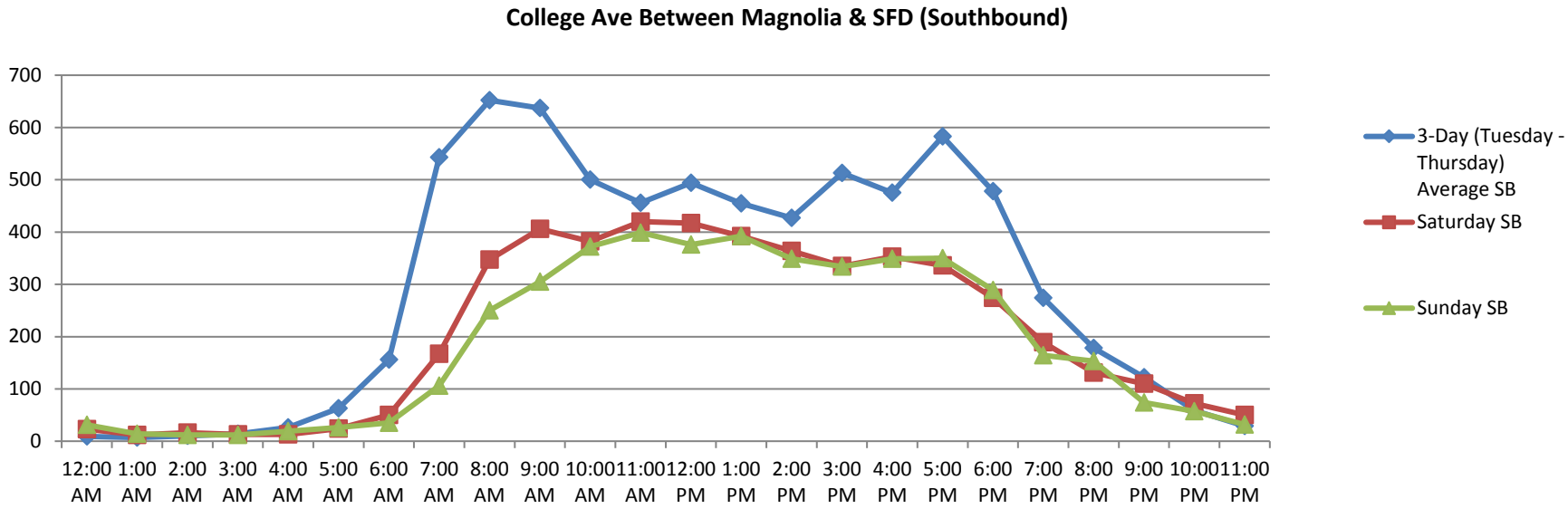
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


College Ave Between Magnolia & SFD (Northbound)
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


College Ave Between Magnolia & SFD (Southbound)
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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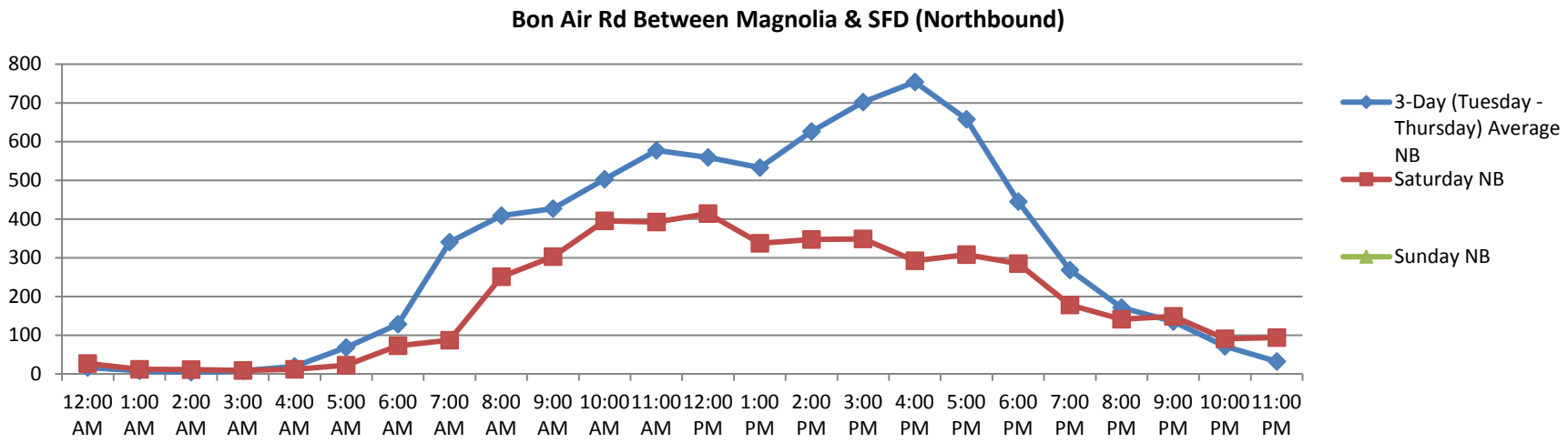
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


Bon Air Rd Between Magnolia & SFD (Northbound)
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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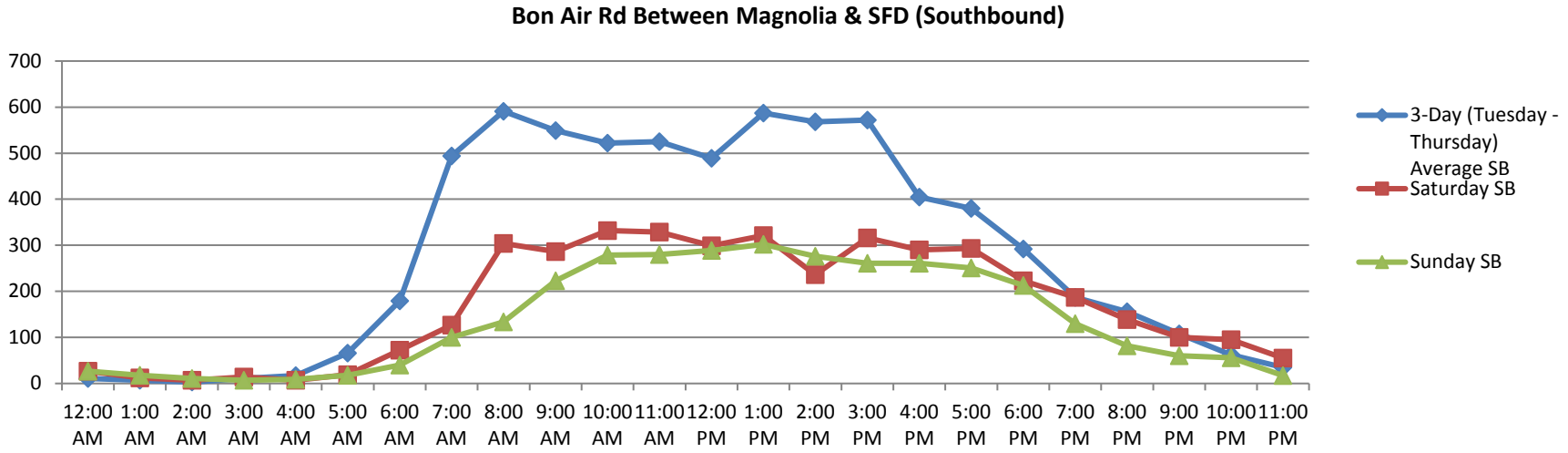
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


Bon Air Rd Between Magnolia & SFD (Southbound)
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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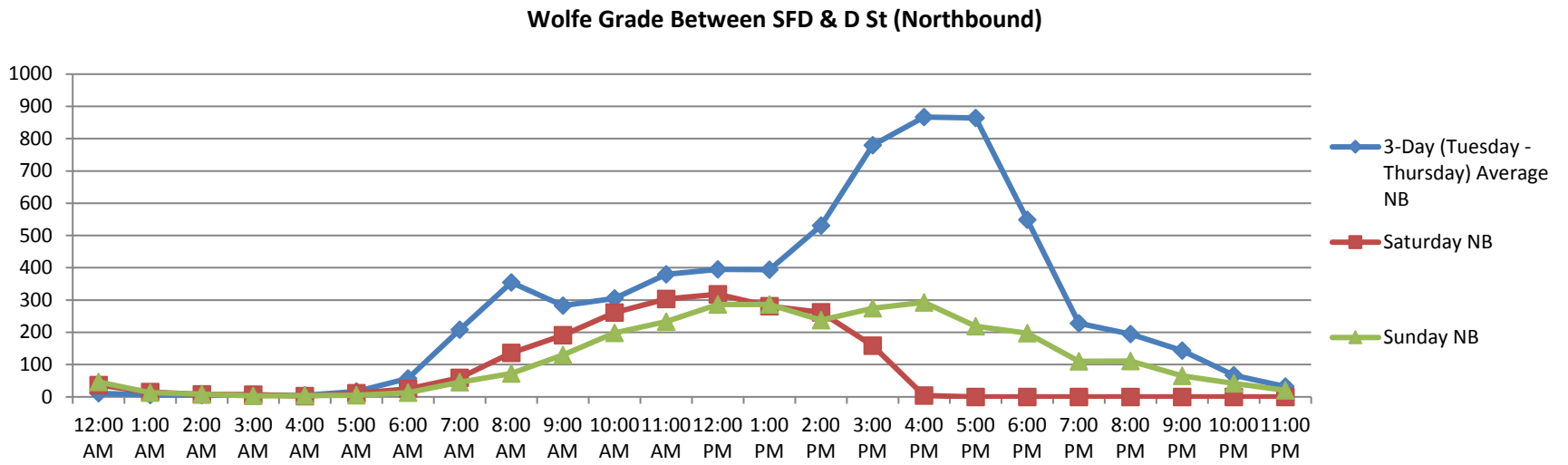
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


Wolfe Grade Between SFD & D St (Northbound)
1000
900
800
700
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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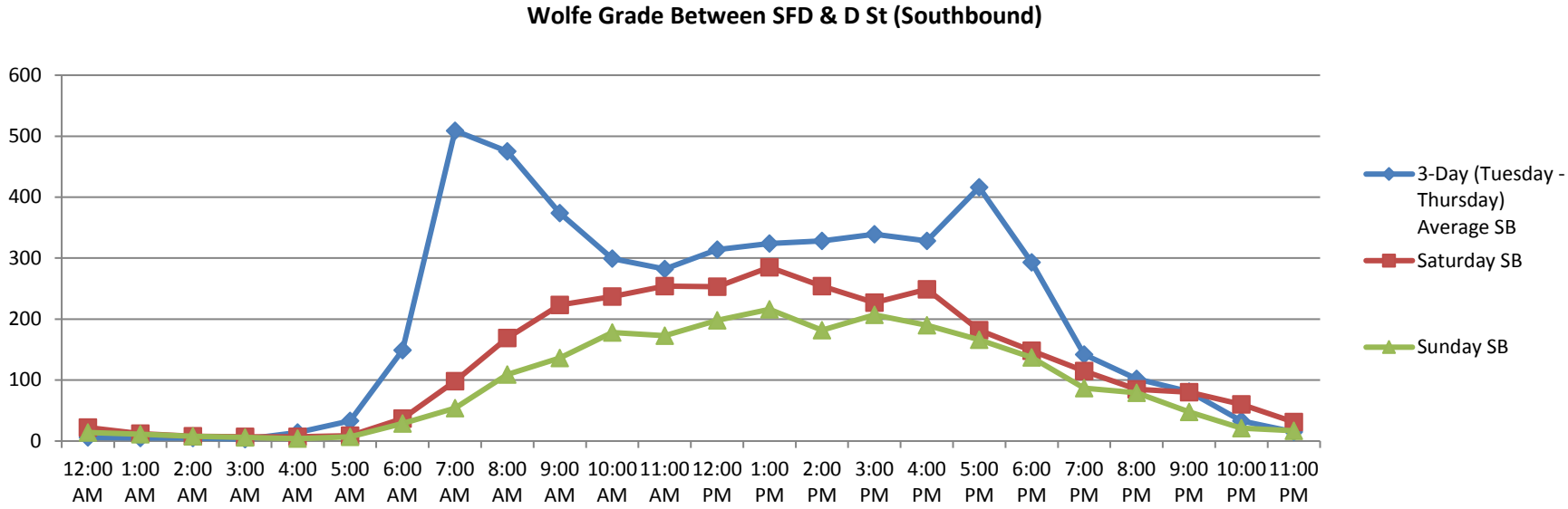
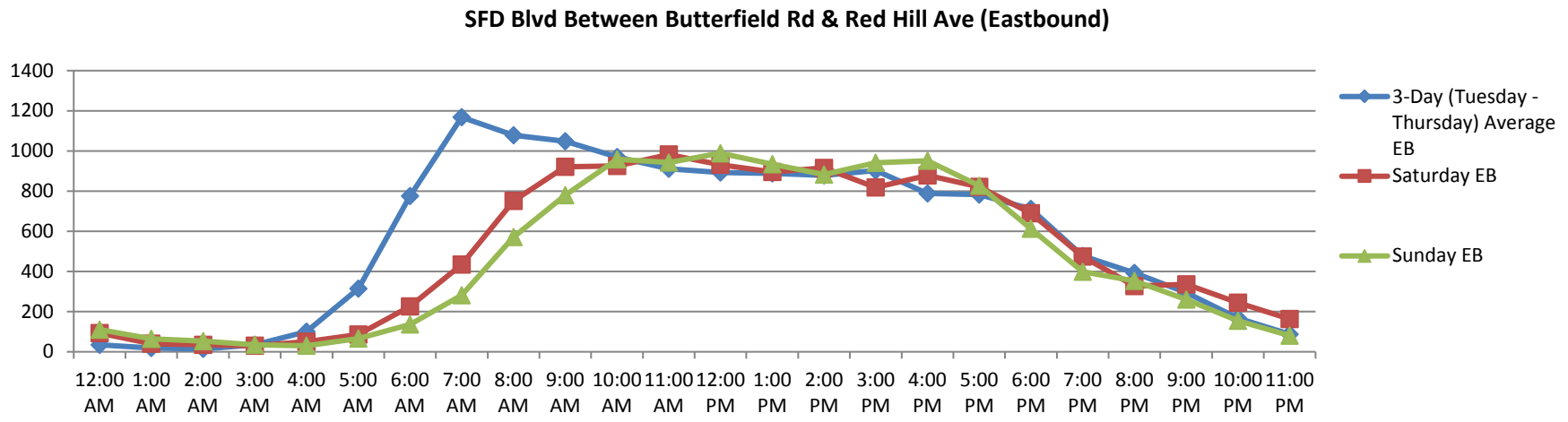
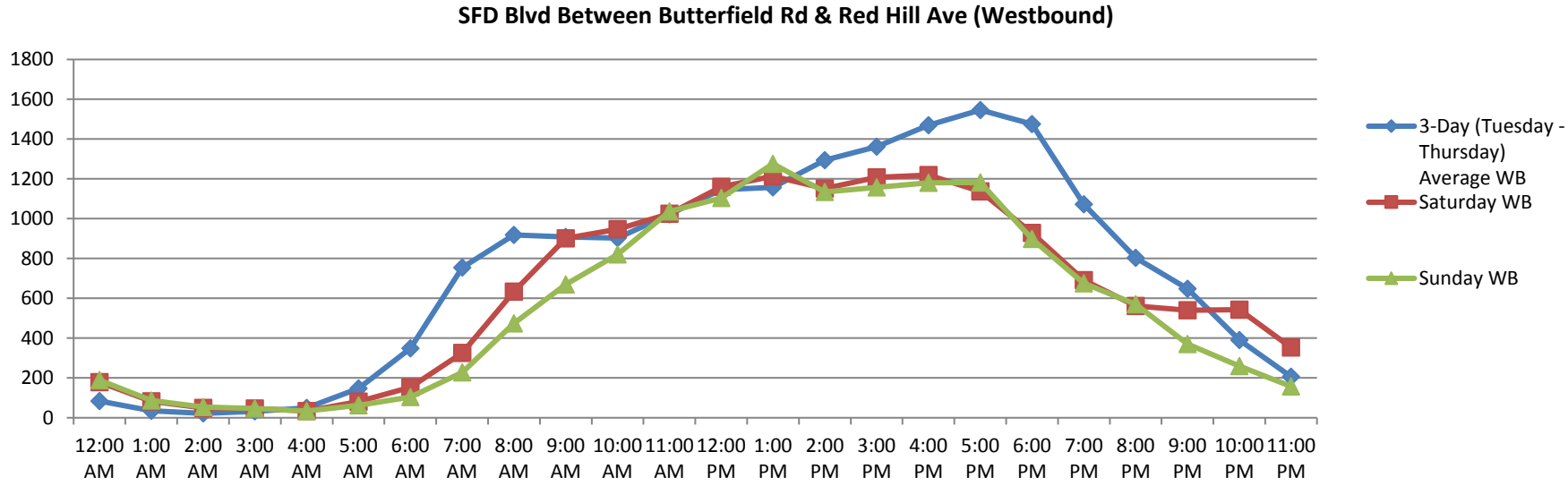
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average NB
Saturday NB
Sunday NB


Wolfe Grade Between SFD & D St (Southbound)
600
500
400
300
200
100
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average SB
Saturday SB
Sunday SB


SFD Blvd Between Butterfield Rd & Red Hill Ave (Eastbound)
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB


SFD Blvd Between Butterfield Rd & Red Hill Ave (Westbound)
1800
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
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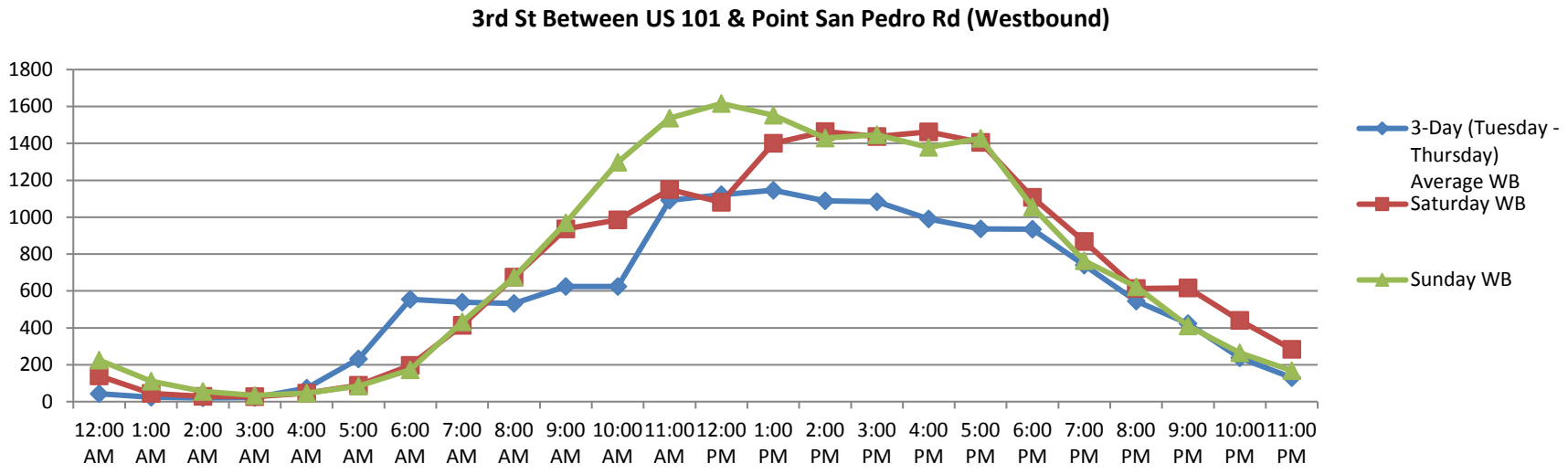
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


3rd St Between US 101 & Point San Pedro Rd (Westbound)
1800
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
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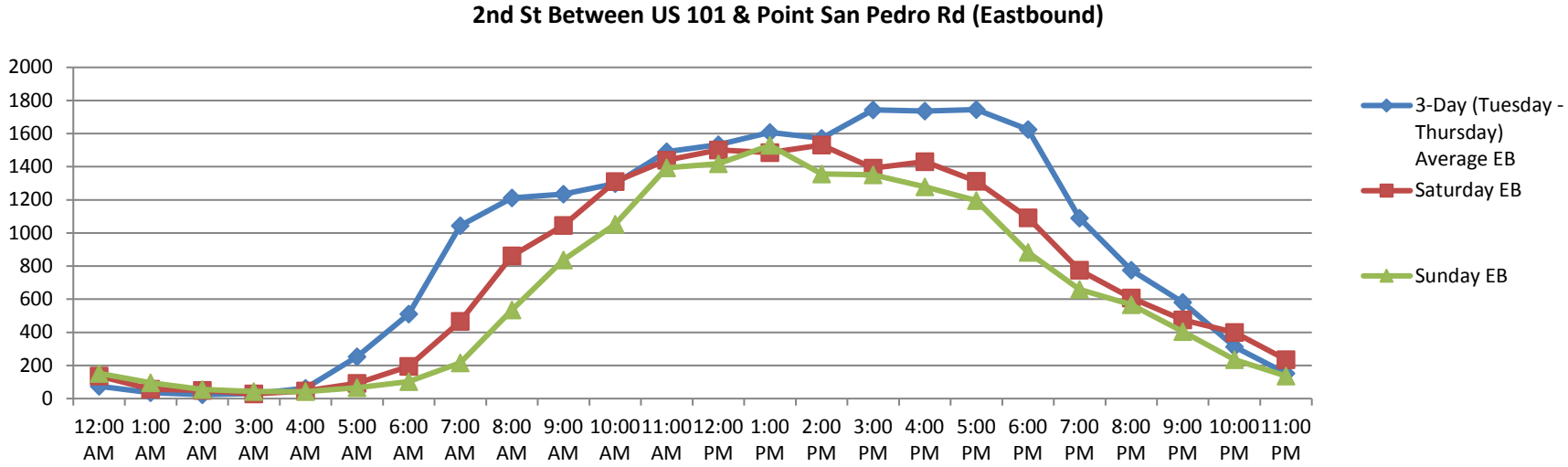
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average WB
Saturday WB
Sunday WB


2nd St Between US 101 & Point San Pedro Rd (Eastbound)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
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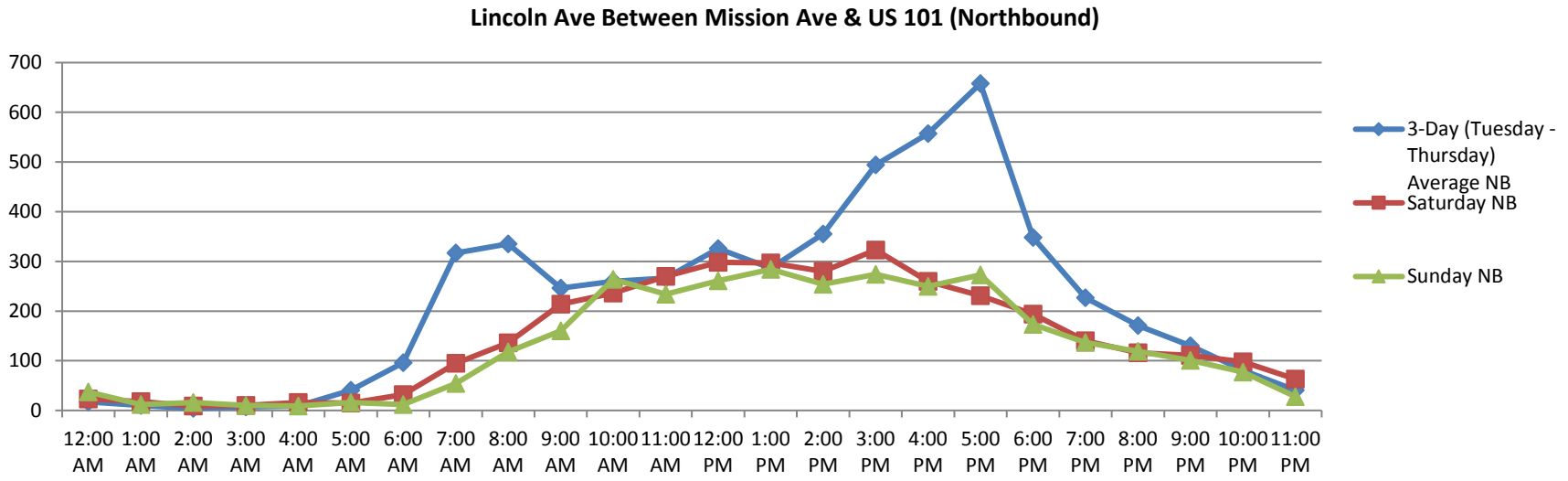
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
3-Day (Tuesday - Thursday) Average EB
Saturday EB
Sunday EB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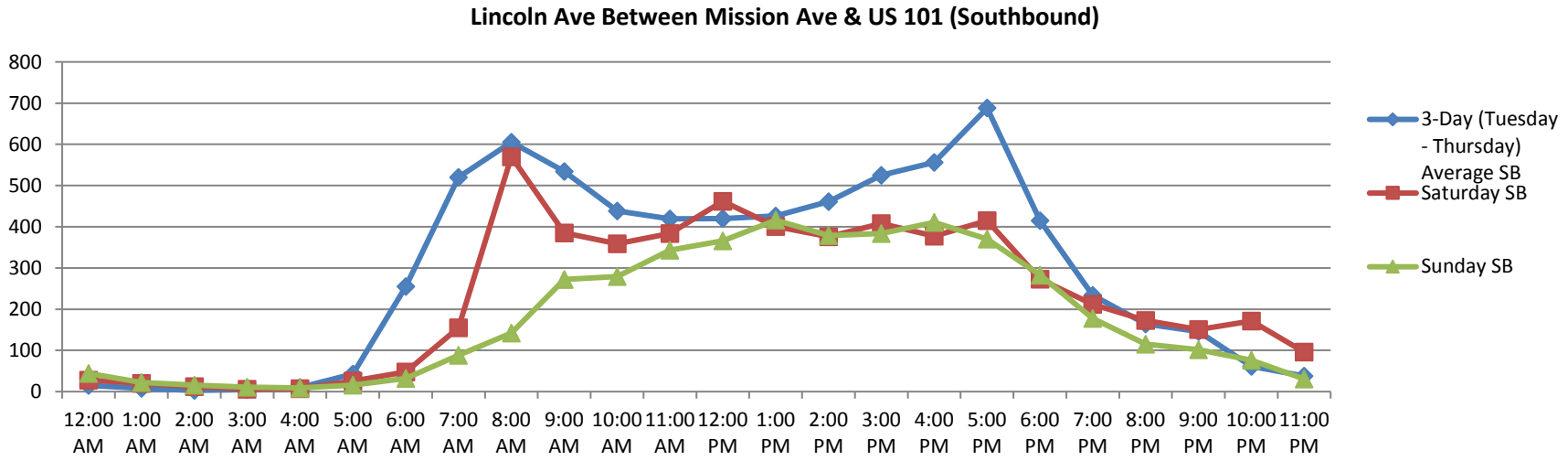
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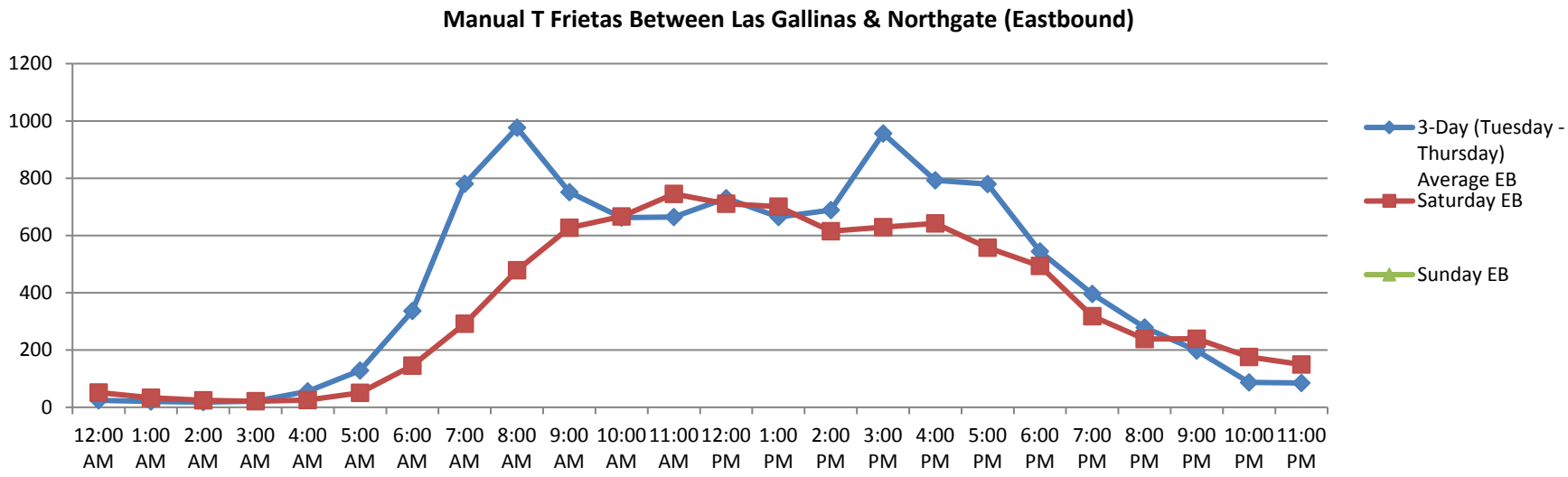
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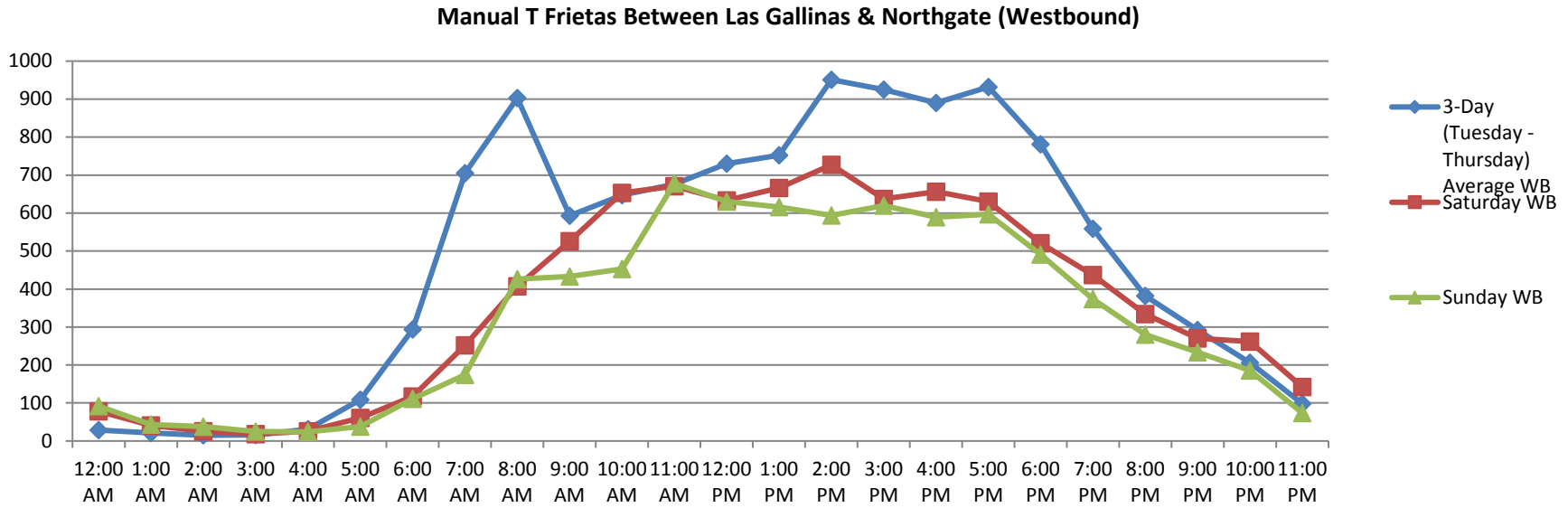
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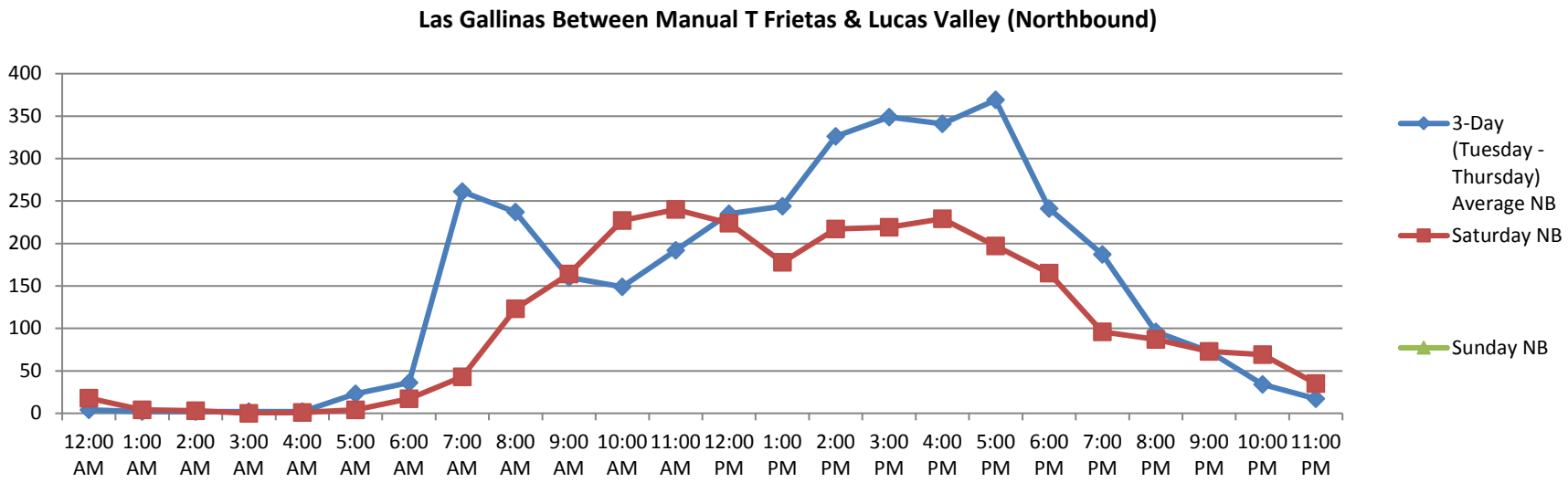
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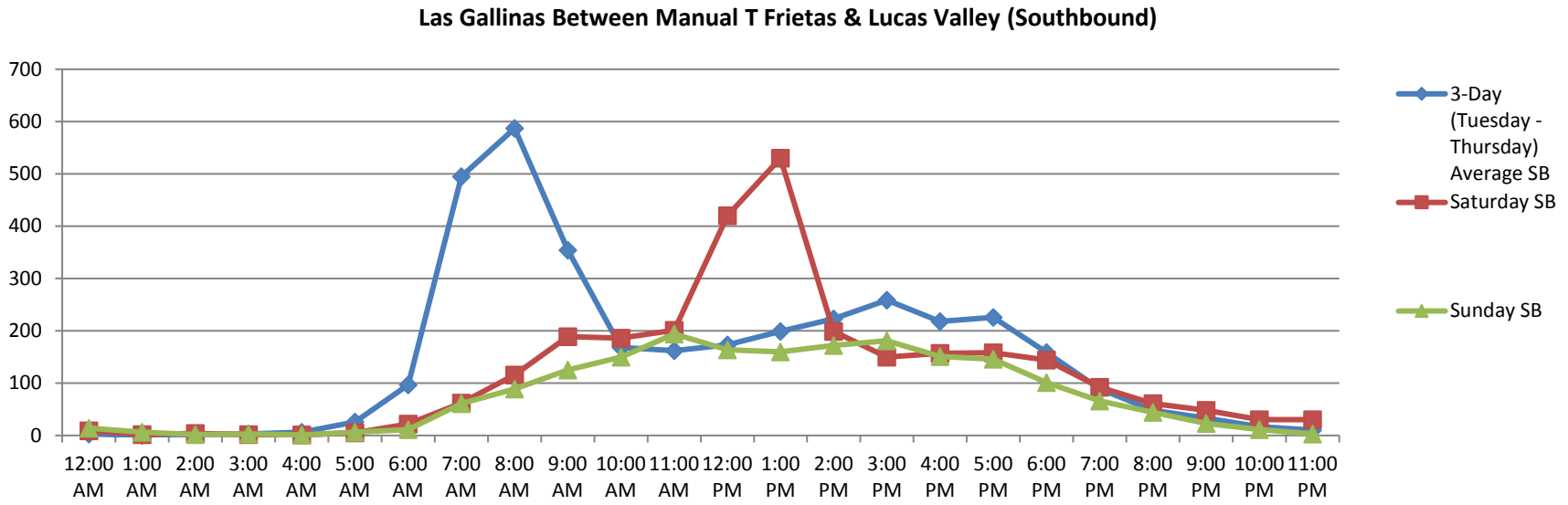
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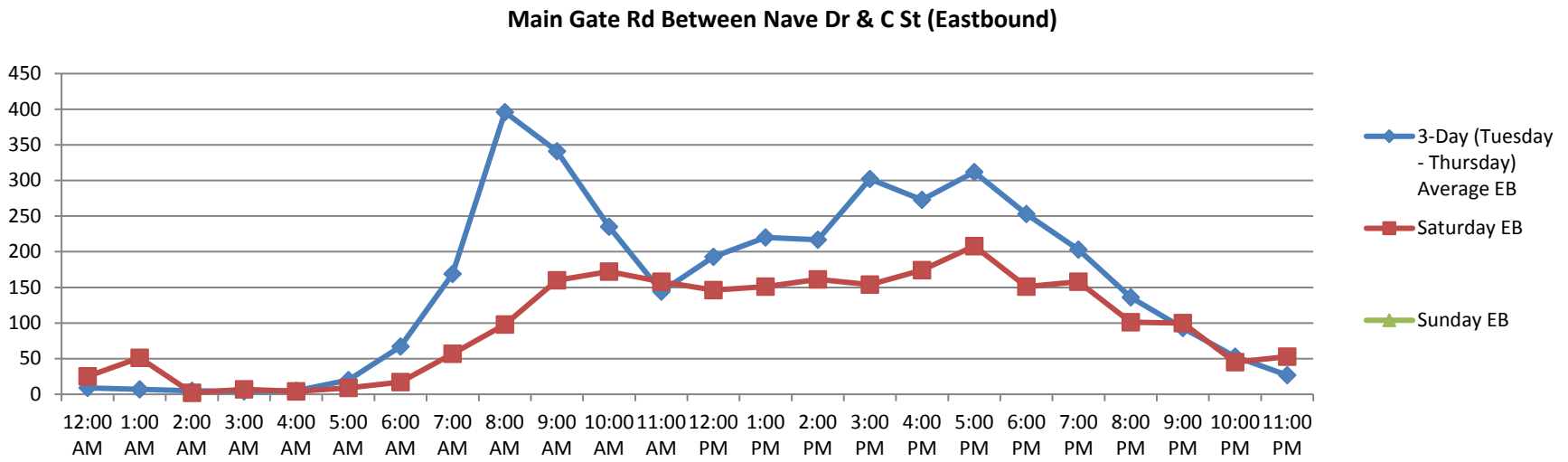
Main Gate Rd Between Nave Dr & C St (Eastbound)
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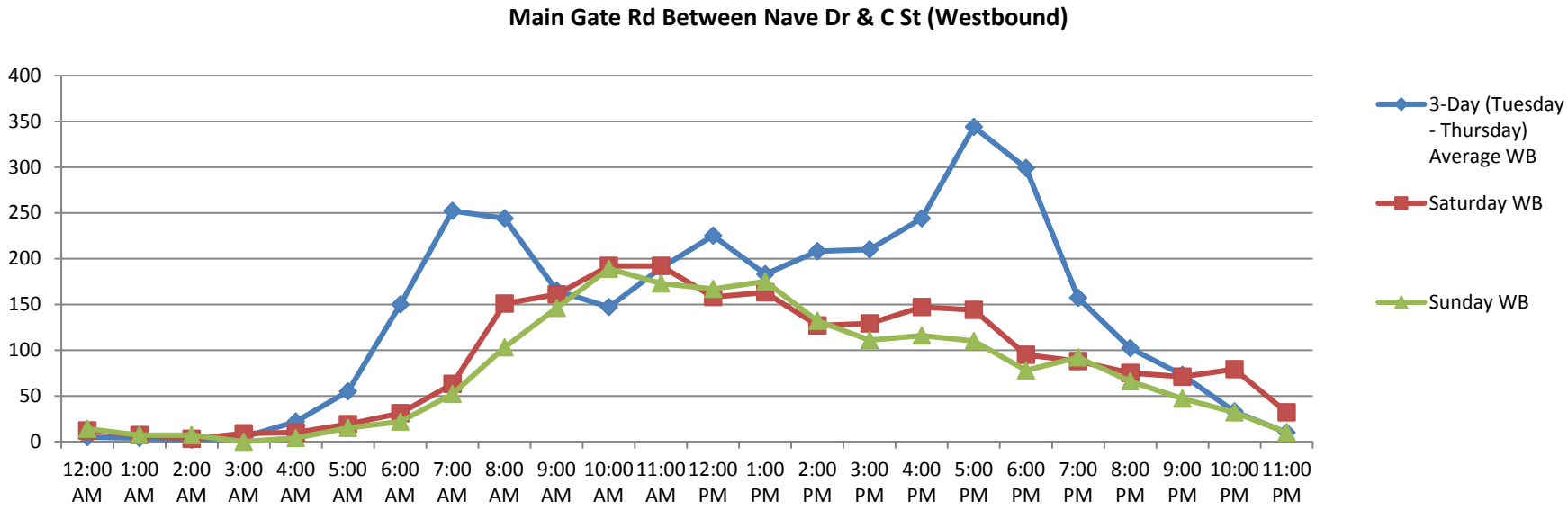
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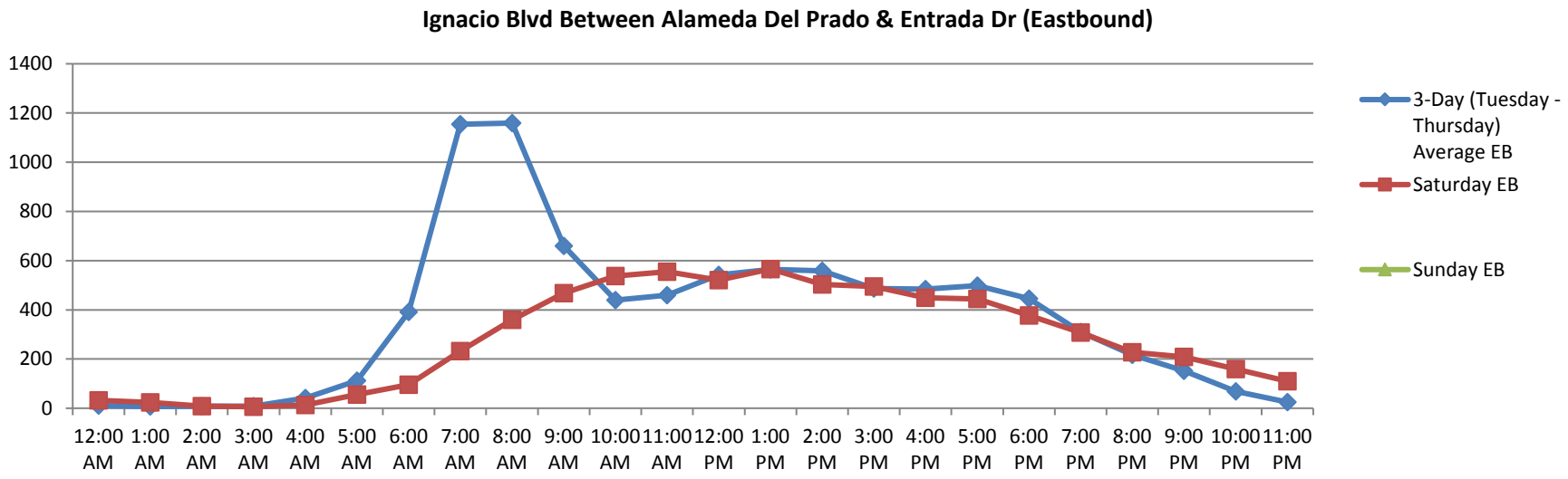
Ignacio Blvd Between Alameda Del Prado & Entrada Dr (Eastbound)
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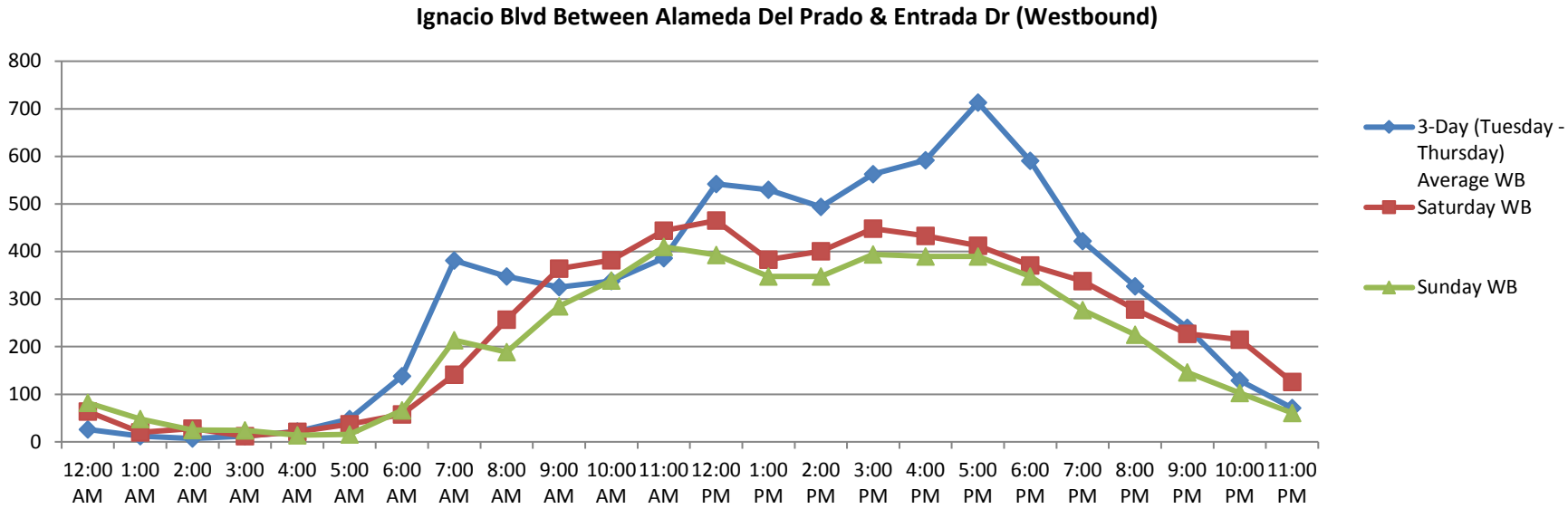
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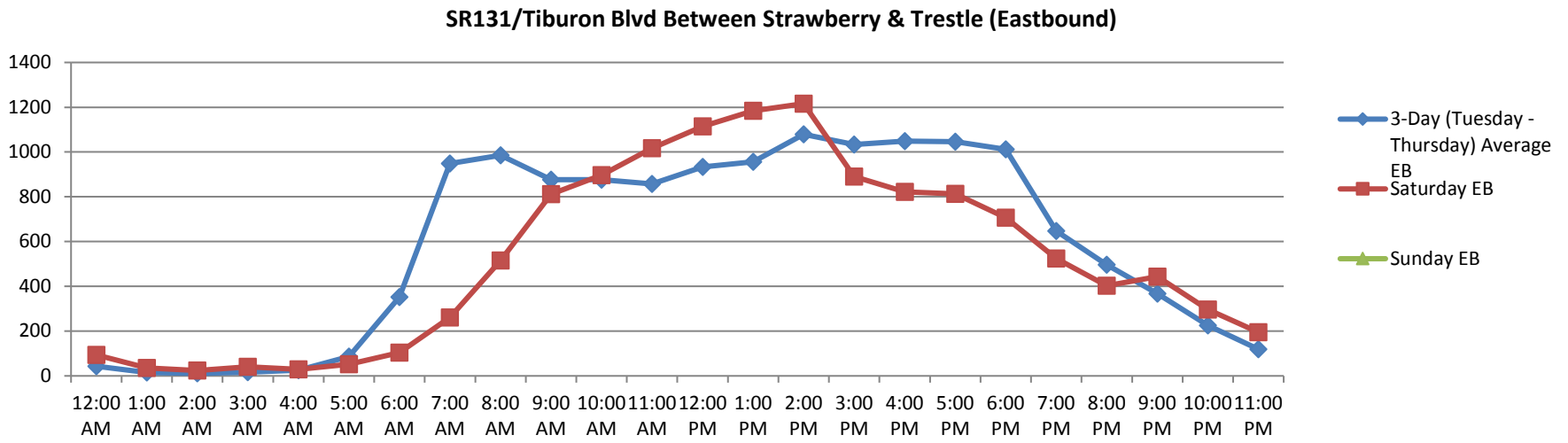
SR131/Tiburon Blvd Between Strawberry & Trestle (Eastbound)
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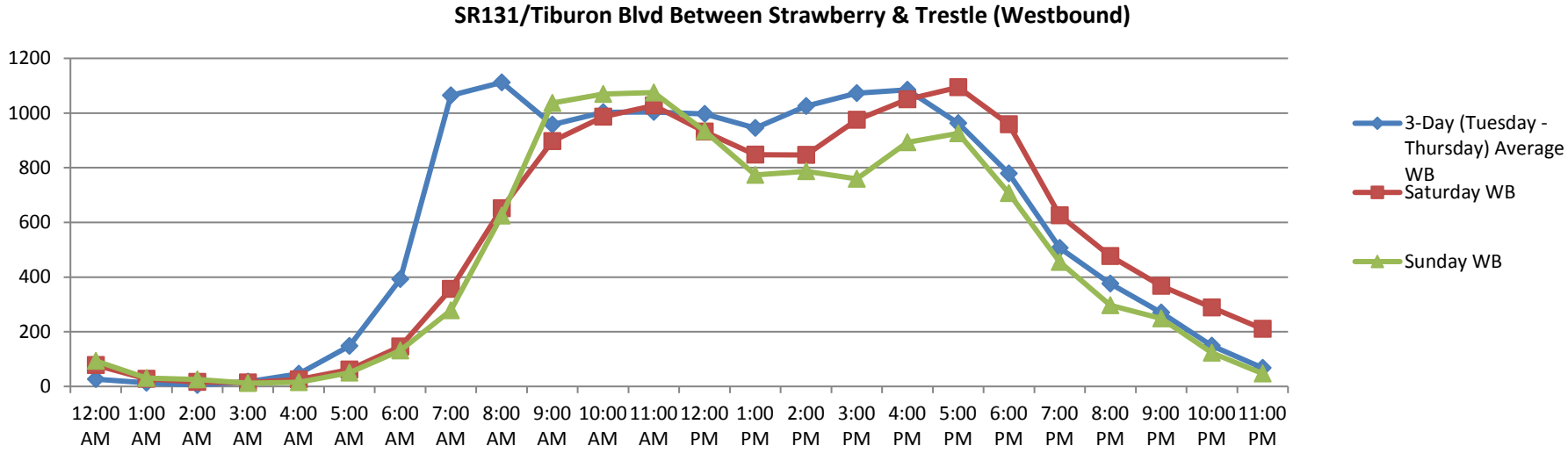
SR131/Tiburon Blvd Between Strawberry & Trestle (Westbound)
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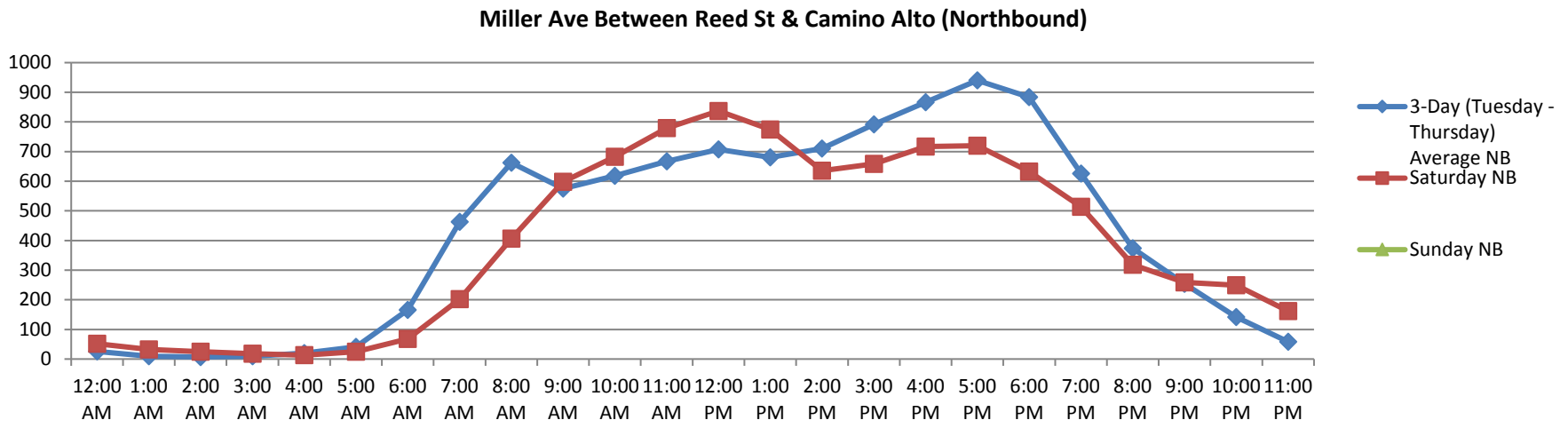
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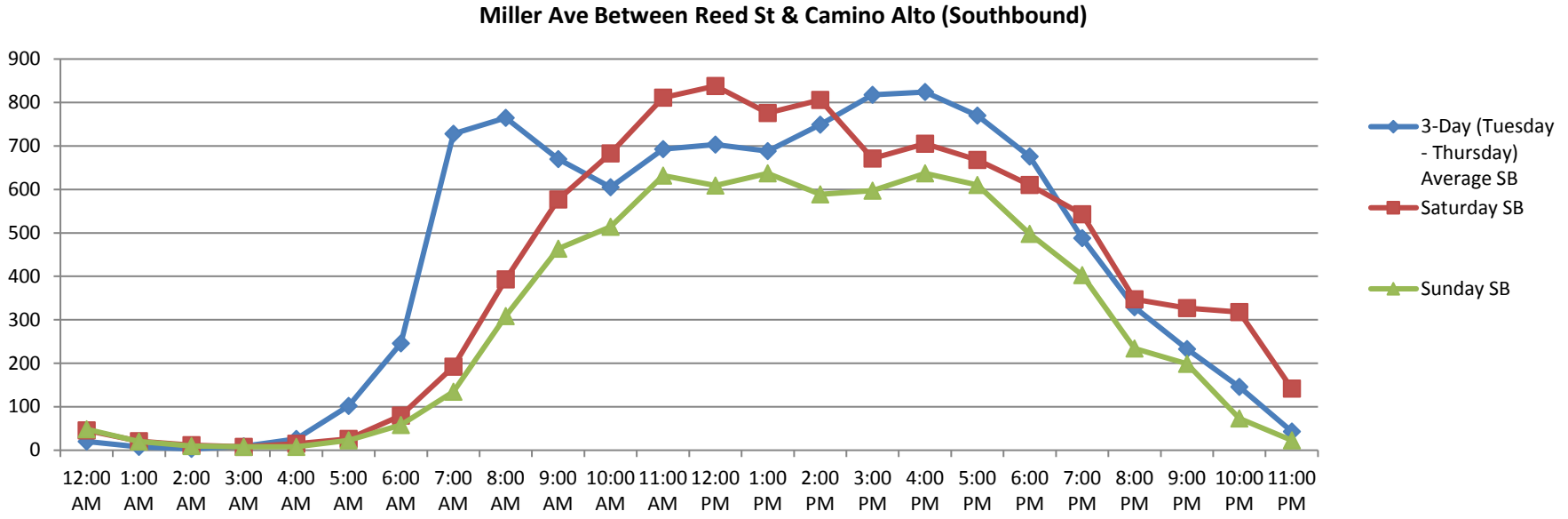
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Transportation Authority of Marin

FINAL REPORT

2016 TRANSPORTATION SYSTEM MONITORING REPORT

August 23, 2017

PREPARED BY:

TJKM

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Table of Contents

List of Tables

List of Figures

EXECUTIVE SUMMARY

The County of Marin maintains a Congestion Management Plan (CMP) through the Transportation Authority of Marin (TAM), the designated Congestion Management Agency (CMA), as required by the California Government Code 65089. TAM is also required to monitor the implementation of all elements of the CMP and prepare a monitoring report every other year. This report fulfils the biennial monitoring task as required by the State. This 2016 Transportation System Monitoring Report provides an insight into the performance of various arterial and freeway segments, throughout the County, and assists with key decisions on future investment of transportation dollars.

Included in this report is extensive bicycle and pedestrian monitoring data. Though not required for the CMP process, TAM chooses to include this data to understand the multi-modal aspects on the CMP network due to the unique nature of Marin County.

CMP Network

The County established the CMP Network in 1991 that included all state highways and principal arterials in the County. In total, the 123-mile CMP network contains 91 miles of state highways and 32 miles of principal arterials. *The CMP adopted Level of Service (LOS) standard for Arterials is LOS D, and for Freeways, it is LOS E. In order for the arterial segments to meet this standard, they should be performing at a speed of 10 mph or more, and for freeway segments, it is 30 mph or more.* Additional details on the network and their recent performance are discussed in Chapter 3 of this 2016 Transportation Monitoring Report.

CMP Network

Data Collection and Congestion Analysis

The biennial monitoring task requires extensive data collection for all established arterials and freeway segments included in the network. With changing needs and technological advancements, the data collection methodology has evolved over the last two decades since the first CMP was adopted.

In order to collect accurate and useful data that is consistent with prior monitoring efforts, certain data collection methods were followed. The data was collected only on normal commute travel days (i.e. Tuesdays, Wednesday, and Thursdays), and non-school days and days with any special events or incidents were eliminated. Available commercial speed data and floating car surveys were utilized for the analysis. The data was analyzed separately for commercial speed data and floating car surveys to obtain average speeds for each segment and convert to LOS using Highway Capacity Manual (HCM) methodologies. Further discussion on data collection efforts is included in Chapter 2.

Monitoring Results

The 1991 CMP established LOS standards for major arterials and freeway segments using travel time and average speed. For arterials, the established standard is LOS D, while for the freeways it is LOS E. Many sections with a LOS designation worse than the adopted standards in 1991 are grandfathered into the first adopted CMP. CMP legislation exempts congested CMP roadway segments that did not meet the minimum LOS standards when the CMP network was formed (in 1991 and 1992) from deficiency identification and preparing a deficiency plan. These segments are referred as Grandfathered Segments.

A total of 17 arterial segments and 10 freeway segments were monitored in this report during the AM and PM peak periods. A summary of these monitoring results are provided in **Table 1.**

Table 1: 2014 CMP Network Monitoring Results

Roadway Type	# of CMP Segments	AM Peak Hour		PM Peak Hour		LOS Standard
		LOS Standard Met	LOS Standard Not Met*	LOS Standard Met	LOS Standard Not Met*	
Arterials	17	16	1	16	1	D
Freeways	10	10	0	6	4	E
TOTAL	**27**	**26**	**1**	**22**	**5**	

Notes: *Includes Grandfathered segments.

In the 2016 Monitoring Cycle, six of the 27 segments did not meet the established LOS standards. Two of the seven segments are arterials, and since all of these segments have been grandfathered, no follow up actions are required. The remaining four are freeway segments, of which three have been grandfathered and of which the 4th segment has a mainline improvement scheduled for construction completion in Fall 2017[1]. On-going work along the eastbound shoulder on the Richmond-San Rafael Bridge has also likely had an upstream impact on travel times, as recorded in this monitoring report for Segments 5A and 5B. These freeway segments do not require any follow up actions or corrective measures at this time. Additional details for all arterial and freeway segments are provided in Chapter 3.

[1] The Bay Area Toll Authority (BATA) is spearheading the Richmond-San Rafael Bridge Access Improvements to improve mobility along the Interstate 580 corridor between Richmond and San Rafael. This project will convert the right shoulder to a third freeway lane from the Sir Francis Drake Boulevard on-ramp in Marin County to the Marine Street (Richmond Parkway/Point Richmond) exit in Contra Costa County.

1.0 BACKGROUND

1.1 Purpose of the CMP and Biennial Monitoring

The legislative changes of 1990 required all urbanized counties within the State to establish a CMA, and develop and maintain a CMP. As required by the State regulations, TAM, the County-designated CMA, established the CMP roadway network in 1991 that included all state highways and principal arterial roadways within the County. California Government Code Section 65089(b)(1)(A) states that once a highway or roadway has been designated as part of the CMP system, it cannot be removed. Furthermore, Section 60589(b)(4) requires that the regional transportation system is part of the required land use program defined by State statute.

Biennial monitoring provides an opportunity to monitor established LOS standards for the arterial and freeway segments, and identify appropriate strategies to employ when a segment fails to meet the established LOS standards. While the CMP is very critical to Marin County's transportation vision, it also supports the broader transportation goals of the Regional Transportation Plan (RTP) developed by the Metropolitan Transportation Commission (MTC), the San Francisco Bay Area's regional transportation planning agency. The Marin CMP roadway system is consistent with the RTP, as well as the CMPs of adjoining Contra Costa, San Francisco, and Sonoma counties.

1.2 CMP Designated Network

The following State Highways and arterials are included in the Marin County CMP roadway network:

1. State Route 1 (SR 1) – from Sonoma County Line to United States Highway 101 (US 101)
2. State Route 37 (SR 37) – from US 101 to Sonoma County Line
3. US 101 – from Sonoma County Line to San Francisco County Line
4. State Route 131 (SR 131) – from US 101 to Main Street in Tiburon
5. Interstate 580 (I-580) – from US 101 to Contra Costa County Line
6. Novato Boulevard / South Novato Boulevard in Novato – from Sutro Avenue / San Marin Drive to US 101
7. Bel Marin Keys Boulevard – from US 101 Southbound Ramps to Commercial Boulevard
8. Sir Francis Drake Boulevard in unincorporated Marin County, Fairfax, San Anselmo, Ross, Kentfield, Larkspur – from SR 1 to I-580
9. Red Hill Avenue / 2nd Street / 3rd Street in San Anselmo and San Rafael – from Sir Francis Drake Boulevard to US 101
10. Bridgeway / 2nd Street / Alexander Avenue in Sausalito – from US 101 to US 101

Table 2 provides details of the Marin CMP Roadway Network segments. In total, the 123-mile CMP designated roadway network contains 91 miles of state highways and 32 miles of principal arterial roadways. The CMP Network is illustrated in **Figure 1**.

The HOV lanes in the Marin CMP network are illustrated in **Figure 2**.

Table 2: Arterial and Freeway Segments in CMP Network

ID #	Street	From	To	CMP Facility Type	Grand-fathered Status
1A	SR 1	US 101	Tennessee Valley Rd	Arterial	No
1B	SR 1	Northern Ave	Almonte Blvd	Arterial	Yes
1C	SR 1	Sir Francis Drake Blvd	Pt. Reyes Station	Arterial	No
2A	SR 37	US 101	Atherton Ave	Freeway	No
3A	US 101 (MF and HOV)	Golden Gate Bridge	Spencer Ave	Freeway	No
3B	US 101 (MF and HOV)	SR 131 (Tiburon Blvd)	Tamalpais Dr	Freeway	Yes
3C	US 101 (MF and HOV)	Sir Francis Drake Blvd	I-580	Freeway	Yes
3D	US 101 (MF and HOV)	I-580	Mission Ave	Freeway	Yes
3E	US 101 (MF and HOV)	Mission Ave	N. San Pedro Rd	Freeway	Yes
3F	US 101 (MF and HOV)	Freitas Pkwy	Lucas Valley Rd	Freeway	Yes
3G	US 101	North of Atherton	Sonoma Co. Line	Freeway	Yes
4A	SR 131 (Tiburon Blvd)	Redwood Hwy Frontage Rd	E. Strawberry Dr	Arterial	No
5A	I-580	Sir Francis Drake Blvd	Marin Co. Line	Freeway	No
5B	I-580	Bellam Blvd	Sir Francis Drake Blvd	Freeway	Yes
6A	Novato Blvd	San Marin Dr	Eucalyptus Ave	Arterial	No
6B	Novato Blvd	Wilson Ave	Diablo Ave	Arterial	No
6C	S. Novato Blvd	Sunset Pkwy	US 101	Arterial	No
7A	Bel Marin Keys	US 101	Commercial Blvd	Arterial	Yes
8A	Sir Francis Drake Blvd	Butterfield Rd	Willow Rd	Arterial	Yes
8B	Sir Francis Drake Blvd	San Anselmo Ave	Red Hill Ave	Arterial	Yes
8C	Sir Francis Drake Blvd	College Ave	Toussin Ave	Arterial	Yes
8D	Sir Francis Drake Blvd	College Ave	Wolfe Grade	Arterial	Yes
8E	Sir Francis Drake Blvd	US 101	Larkspur Landing Cir	Arterial	Yes
9A	Red Hill Ave	Sir Francis Drake Blvd	Second St	Arterial	No
9B	Second St	US 101	Marquard St	Arterial	No
9C	Third St	US 101	Marquard St	Arterial	No
10A	Bridgeway	Gate 5 Rd	Gate 6 Rd	Arterial	No

Notes: MF = Mixed Flow lanes; HOV = High Occupancy Vehicle


Legend
CMP Roadway Network
Arterial
Study Segment
Freeway
Study Segment
Marin County Limits
Adjacent County Limits
County of Sonoma
County of Marin
3G
S Hwy 101
Redwood Hwy
1st Hwy 101
Novato Blvd
Atherton Ave
Olive Ave
Wilson Ave
Center Rd
6A
6B
6C
2A
37
State Hwy 37
US 101
7A
Nave Dr
Nicasio Valley Rd
Hwy 1
1C
Shoreline Hwy
Lucas Valley Rd
Sir Francis Drake Bl
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8A
8B
9A
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5th Ave
3rd St
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8E
I-580
580
Redwood Hwy
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Miller Ave
Tiburon Blvd
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10A
Bridgeway
3A
Grand Ave
Lochinvar Rd
Point San Pedro Rd
Canal St
Francisco Blvd
Irwin St
Old Bolis St
Kerner Blvd
Laurel Grove Ave
Woodland Rd
Magnolia Ave
S Eliseo Dr
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Figure 1
Marin County CMP Network
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Transportation Authority of Marin

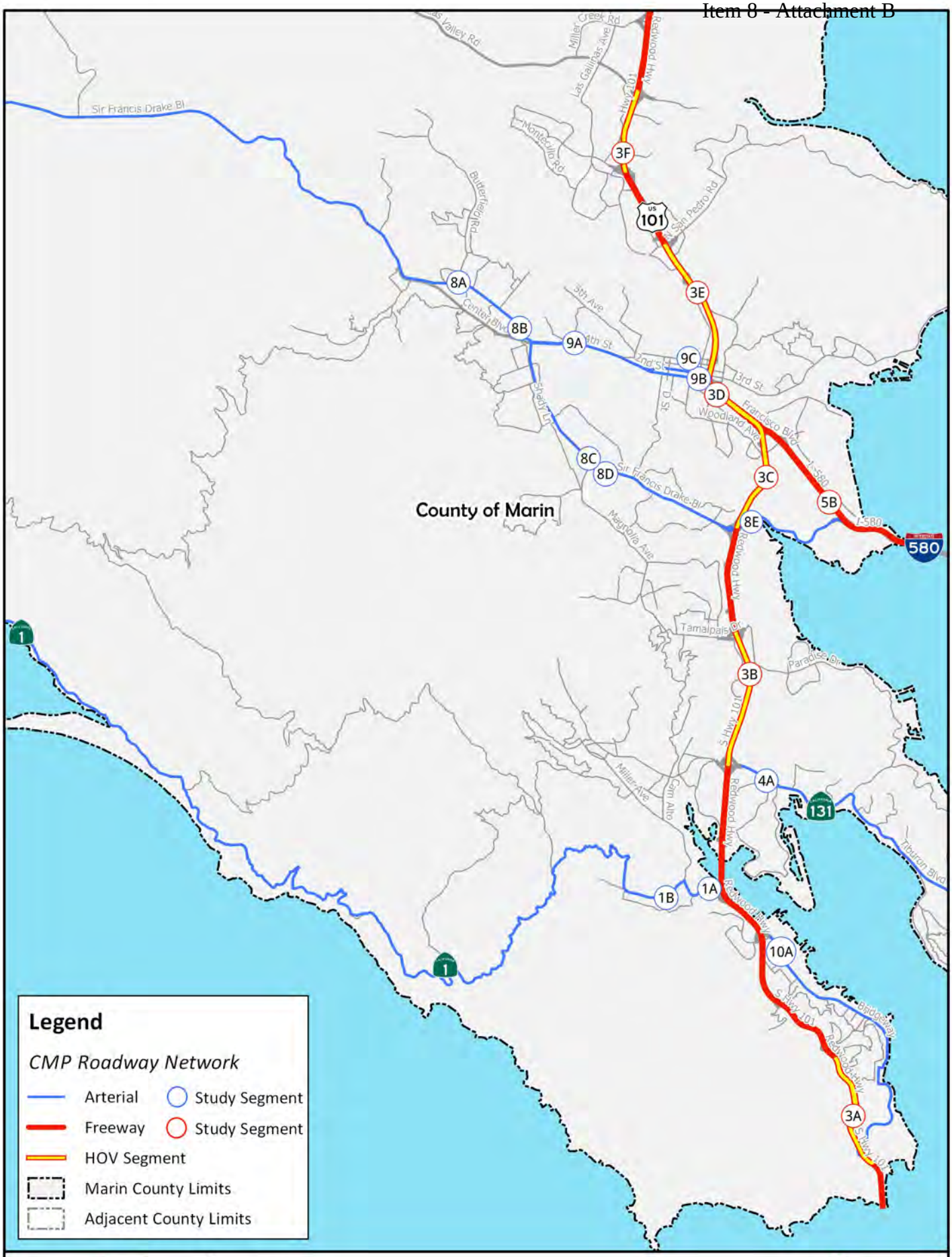

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Figure 2

HOV Lanes in CMP Network

TAM Transportation Authority of Marin

1.3 Roadway System Level of Service

The 1991 CMP established the LOS standards for the arterials and freeway segments using travel times and average speeds. For the arterial segments, LOS D is the established standard while for the freeway segments, LOS E is the accepted standard. Certain segments were operating at lower levels of service when these standards were established. These segments have been "grandfathered" in, allowing them to operate at levels lower than the established standards without requiring corrective measures.

Local jurisdictions often measure LOS based on delay at intersections. However, TAM as a CMA is concerned with system performance as a whole, not the performance of individual intersections. Therefore, LOS for the CMP is based on travel speeds, and not delay at intersections.

The following **Table 3** shows frequency of monitoring based upon the results of the most recent data collection and analysis efforts:

Table 3: Frequency of CMP Monitoring

Roadway Type	LOS in Most Recent Monitoring Report	Frequency of Monitoring
Arterial Segments	LOS C or better (> 13 MPH)	4 years
	LOS D or worse (< 13 MPH)	2 years
Freeway Segments	LOS C or better (> 54 MPH)	4 years
	LOS D or worse (< 54 MPH)	2 years
Grandfathered Segments	N/A	2 years

Source: 2012 Transportation Monitoring Report

The 2016 monitoring included all arterial and freeway segments within the network, irrespective of their 2014 LOS designation. These efforts are in conformance with the established monitoring requirements.

2.0 METHODOLOGY

This section discusses the methodology utilized for measuring LOS on major arterials and freeways. The process begins with screening days within the monitoring period to ensure that only those expected to result in normal commuter traffic conditions are retained. Days that could produce lighter or heavier than usual traffic conditions, such as public holidays or special event days, were identified for later removal.

Using a combination of commercial speed data and floating car surveys, travel time data was collected for 27 segments within Marin County, including 17 arterial segments and 10 freeway segments, six with HOV lanes. The raw commercial speed data and floating car survey data were subsequently post-processed in order to calculate average speeds along study segments and analyzed. Consistent with prior Marin County CMP monitoring, average speed was then used to assign LOS using HCM methodologies.

2.1 Screening for Data Collection Periods

To ensure that data collection efforts appropriately reflect normal traffic conditions, the data collection schedule was carefully reviewed in an effort to eliminate collection of abnormal travel conditions associated with national holidays, school holidays across the county, construction events, and any other events associated with abnormal traffic conditions, such as seasonal shopping events. These factors have potential to affect the data quality for the current monitoring and removing them ensures the LOS results are representative of normal traffic conditions experienced by a daily commuter.

Travel time data was collected using a combination of commercial speed data and in-field floating car surveys, and therefore appropriate monitoring days for both sources were reviewed and identified. Additionally, commercial speed data was also obtained for some arterial segments that were also selected for in-field floating car surveys, with the intention of providing an additional level of data validation between sources.

Notwithstanding the preliminary screening process, the data collected in the field was processed and reviewed to identify any significant inconsistencies relative to prior year analyses, adjacent segment travel times and travel patterns, commercial speed data, and TJKM's understanding of area circulation patterns. A second round of floating car surveys were performed on segments where irregularities were found in this secondary screening process, in order to increase the number of data points used in the average speed calculations, further improving our confidence in the data validity.

2.1.1 Base Monitoring Times

In-field floating car surveys for LOS monitoring were conducted in October, November, and December 2016, when schools were in session. A second round of in-field floating car surveys were conducted in March and April 2017, when schools were in session, after secondary data screening revealed some segments would benefit from additional data points to ensure data confidence. Commercial speed data was obtained in September 2016.

Weekday data was collected on Tuesdays, Wednesdays, and Thursdays for the nominated morning and evening peak periods. The morning peak period was from 7:00 AM to 9:00 AM and the evening peak period was from 4:30 PM to 6:30 PM.

2.1.2 Public Holidays, Special Events, and Weather Conditions

During the data collection days and times, no public holidays, special events or weather conditions were observed that could have impacted the usefulness of the collected data. The data was collected on days and hours representative of normal traffic conditions.

2.1.3 Construction/Maintenance and Traffic Incidents

Significant construction impacts were not present during the monitoring period, resulting in no data being disqualified from the process. However, some on-going construction, maintenance, and rehabilitation work on the eastbound Richmond-San Rafael Bridge shoulders may have caused increased congestion upstream on I-580 eastbound analysis segments. This work was on-going during a significant portion of 2016 and will continue until Fall 2017. The reason for this work is in part to prepare for addition of a third eastbound lane, in response to existing PM peak hour eastbound congestion. Therefore, despite potentially affecting travel times, this work was not considered disqualifying for the purposes of this study, since poor travel times were reported previously in 2014. The next monitoring in 2018 should reveal the benefit of this project for eastbound travel times on these analysis segments.

Major incidents have potential to impact normal daily traffic conditions so data for incidents was reviewed. Using Freeway Performance Monitoring System (PeMS) operated by Caltrans, incident data during the monitoring period was collected. Upon review, no data was excluded from the monitoring period due to incidents on the CMP segments.

2.2 Data Collection

Travel time, traffic volumes, bicycle, and pedestrian volumes were collected during the monitoring period on Tuesdays, Wednesdays, and Thursdays. This section describes the types of data and their collection methods.

2.2.1 Travel Time Data

Both commercial speed data and in-field floating car surveys were obtained to measure average speed, and quantify LOS, in the Monitoring Report. In some cases, commercial speed data and in-field floating car surveys were obtained for overlapping study locations, on different dates, in order to gauge consistency between methods and as a secondary screening for unusual travel conditions.

Commercial Speed Data (INRIX)

MTC has contracted with INRIX to obtain region-wide commercial speed data, and has made the data available for planning and monitoring purposes. This LOS Monitoring Study used the commercial speed data from INRIX through MTC's contract. INRIX "aggregates traffic data from GPS-enabled vehicles and mobile devices, traditional road sensors and hundreds of other sources."

Traffic data is reported by INRIX using discrete roadway links termed as Traffic Message Channels (TMCs). Each TMC link is associated with a unique ID represented by a nine-digit code, where each individual number in the TMC code describes a portion of the geography including country, direction of travel, and roadway segment. INRIX data contains speeds aggregated at multiple time intervals for each TMC code in the network. For the current monitoring period, data at individual minute granularity was accessed for the selected monitoring times across all identified CMP segments in Marin County. Data from INRIX was then compared with floating car survey data to verify quality and help justify use.

Floating Car Surveys

Floating car surveys were conducted for the 17 arterial roadway segments identified for study, and the six high-occupancy vehicle (HOV) freeway segments. The surveys were completed using GPS technology to determine the travel time between the start and end of each CMP segment. A minimum of three surveys were completed for peak period and in each direction of travel on arterial and HOV freeway segments. Where INRIX data was deemed appropriate for use, floating car data was not used in travel time reporting or LOS calculations.

2.2.2 Bicycle and Pedestrian Counts

Bicycle and pedestrian counts were collected at 29 locations, six of which are new compared to 2014. At majority of the locations, the data was collected for 14 hours during the weekdays and two hours during the weekends. Additional details on this effort are included in Chapter 5.

2.2.3 Vehicle Screen Line Counts

Vehicle counts were collected for the 17 arterial monitoring locations over a period of seven days, during a typical week the AM and PM peak periods on typical weeks in October and November 2016 when schools were in session, during clear weather. For the 10 freeway segments, data was pulled from PeMS, as available, and where not available, from recently published traffic studies that included relevant and recent count information. Further discussion of this data is included in Chapter 6.

2.3 Data Analysis

The methodology for determining LOS from raw commercial speed and floating car survey data includes two steps. The first step requires converting the raw speed data into average peak period speeds on every CMP segment. The methodology differs between the two data sources for the conversion process. The second step consists of converting the average speeds to LOS using a specific method dependent on the type of roadway facility.

2.3.1 Average Speed – Commercial Speed Data (INRIX)

Once collected from the INRIX database, the commercial speed data points were associated with the appropriate CMP segment based on the date and time of the floating car surveys. Once reduced, the data was averaged on each segment to determine the average speed for all selected data points. *Three grades (10, 20, or 30) are associated with INRIX data, with a grade of 10 representing low quality, historical speed data, 30 representing high-quality probe data, and 20 representing a mixture of the two.* The collected datasets were graded and then compared with floating car survey data to verify quality and help justify use. Only grade 30 INRIX data was used in analysis over floating car survey data where manual collection results misrepresented normal traffic conditions.

2.3.2 Average Speed – Floating Car Survey Data

Once floating car survey data was collected using GPS units, it was processed to present average speed and travel time on each segment. It was then tabulated into spreadsheets to calculate the average speed using the travel time and length for each CMP segment.

2.3.3 Level of Service Standards

Determination of average speed allowed for LOS assignment on each CMP segment based on the methodology documented in Highway Capacity Manual 2010 (HCM 2010), published by Transportation Research Board. This study uses LOS speed standards as shown in **Tables 4** and **Table 5.**

Arterials

LOS for arterial facilities is dependent on the average speed of traffic on the segment. **Table 4** shows LOS designation assigned to various ranges of vehicle speeds on arterials. Based on the average speed of the freeway in the morning and evening peaks and using the HCM standards as shown in the table below, LOS was estimated for each CMP segment, in each travel direction, and during each weekday peak period.

Table 4: Arterial Level of Service Thresholds

Speed	Level of Service (LOS)
25 mph	A
20 mph	B
13 mph	C
10 mph	D
7 mph	E
< 7 mph	F

Source: Highway Capacity Manual, 2010 Edition

Freeways

The LOS assignments for freeway segments are different from arterials primarily due to higher capacity and higher speeds. **Table 5** shows LOS designations for freeway segments based on average vehicle travel speeds. Based on the average speed of the freeway in the morning and evening peaks and using the HCM standards as shown in the table below, LOS was estimated for each CMP segment, in each travel direction, and during each weekday peak period.

Table 5: Freeway Level of Service Thresholds

Speed	Level of Service (LOS)
60 mph	A
57 mph	B
54 mph	C
46 mph	D
30 mph	E
< 30 mph	F

Source: Highway Capacity Manual, 2010 Edition

3.0 LEVEL OF SERVICE RESULTS

This chapter discusses the 2016 monitoring LOS results for arterial and freeway segments on the CMP roadway network based on the data collected for the project during 2016/17. **Figures 3** and **4** illustrate the LOS results for each of the CMP Arterial and Freeway segments in Marin County for 2016.

3.1 Arterial Level of Service

There are 17 major arterial segments identified in the Marin County CMP network.

3.1.1 Existing Arterial Level of Service

In the AM peak period, all arterial segments except one are performing at LOS D or better. The Segment #8E, Sir Francis Drake Boulevard from Larkspur Landing Circle to US 101 in the westbound direction resulted in LOS E. This result is consistent with the results of the 2014 monitoring study. The LOS results for arterial segments in the AM peak period are shown in the **Table 6**.

In the PM peak period, all arterial segments except one are performing at LOS D or higher. The Segment #8E, Sir Francis Drake Boulevard from Larkspur Landing Circle to US 101 in the eastbound direction resulted in LOS F. This finding mirrors the AM peak hour result, which finds LOS E conditions in the opposite, westbound, direction, indicating the influence of commute traffic. This result shows a marked improvement over the 2014 monitoring study, which found an additional two segments operating at LOS E or worse. The LOS results for arterial segments in the PM peak period are shown in the **Table 7**.

Comparison charts of LOS results, for both directions of travel during the AM and PM peak periods, from 2014 and 2016 monitoring cycles are shown after the tables. **Figures 3** and **4** illustrate the LOS results for each of the CMP Arterial segments in Marin County for 2016.

3.1.2 CMP Arterial Level of Service Performance Standard

The LOS standard to meet CMP requirements is LOS D for major arterials in the PM peak period. There is no LOS standard for AM peak period.

As discussed in the section above, Segment #8E, Sir Francis Drake Boulevard from Larkspur Landing Circle to US 101 in the eastbound direction is performing at LOS F in the PM peak period. However, this segment is grandfathered, and therefore, no action is required.

3.1.3 Historical Arterial Level of Service

The **Table 8** and chart in the following pages show the historical LOS results from 2008–2016 for arterials in the Marin CMP network in the peak direction of travel during the PM peak period. Historical data for the peak direction of travel of both peak hours is presented in the charts for 2014 and 2016 Arterial LOS comparison.

Table 6: 2016 Arterial LOS Summary – AM Peak Period

ID	Roadway	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS GOAL	ACTION
				Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg. Speed (mph)	LOS		
1A	SR 1	US 101 to Tennessee Valley Rd	0.40	01:05	25	B	02:19	16	C	D	None
1B	SR 1	Northern Ave to Almonte Blvd	0.80	03:31	15	C	01:49	27	A	D	None
1C	SR 1[1]	Sir Francis Drake Blvd to Pt. Reyes Station	2.20	04:18	31	A	04:30	29	A	D	None
4A	SR 131 (Tiburon Blvd)	Redwood Hwy Frontage Rd to E. Strawberry Dr	0.50	00:49	35	A	01:09	26	A	D	None
6A	Novato Blvd	San Marin Dr to Eucalyptus Ave	0.42	00:53	28	A	01:23	21	B	D	None
6B	Novato Blvd	Wilson Ave to Diablo Ave	1.14	02:59	23	B	02:48	24	B	D	None
6C	S. Novato Blvd	Sunset Pkwy to US 101	1.07	06:23	12	D	02:11	27	A	D	None
7A	Bel Marin Keys	US 101 to Commercial Blvd	0.20	18:26	23	B	01:16	19	C	D	None
8A	Sir Francis Drake Blvd	Butterfield Rd to Willow Rd	0.26	01:14	12	D	00:51	17	C	D	None
8B	Sir Francis Drake Blvd	San Anselmo Ave to Red Hill Ave	1.12	06:32	13	D	02:44	24	B	D	None
8C	Sir Francis Drake Blvd	College Ave to Toussin Ave	0.28	01:08	15	C	00:36	26	A	D	None
8D	Sir Francis Drake Blvd	College Ave to Wolfe Grade	0.61	01:29	26	A	01:12	29	A	D	None
8E	Sir Francis Drake Blvd	US 101 to Larkspur Landing Cir	0.46	01:04	24	B	**03:57**	**10**	**E**	D	None[2]
9A	Red Hill Ave	Sir Francis Drake Blvd to Second St	1.13	02:41	26	A	03:56	19	C	D	None
9B	Second St	US 101 to Marquard St	1.13	02:52	23	B	One Way Only			D	None
9C	Third St	US 101 to Marquard St	1.11	One Way Only			03:29	19	C	D	None
10A	Bridgeway[1]	Gate 5 Rd to Gate 6 Rd	0.17	00:28	22	B	00:29	21	B	D	None

Notes: 1. Data obtained from commercial sources.
2. Grandfathered Segment (No actions required).

Table 7: 2016 Arterial LOS Summary – PM Peak Period

ID	Roadway	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS Goal	Action
				Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg. Speed (mph)	LOS		
1A	SR 1	US 101 to Tennessee Valley Rd	0.40	01:16	21	B	03:03	11	D	D	None
1B	SR 1	Northern Ave to Almonte Blvd	0.80	02:04	24	B	01:39	29	A	D	None
1C	SR 1[1]	Sir Francis Drake Blvd to Pt. Reyes Station	2.20	04:35	29	A	04:19	31	A	D	None
4A	SR 131 (Tiburon Blvd)	Redwood Hwy Frontage Rd to E. Strawberry Dr	0.50	01:16	25	B	01:02	28	A	D	None
6A	Novato Blvd	San Marin Dr to Eucalyptus Ave	0.42	00:49	30	A	00:53	28	A	D	None
6B	Novato Blvd	Wilson Ave to Diablo Ave	1.14	03:58	17	C	03:41	18	C	D	None
6C	S. Novato Blvd	Sunset Pkwy to US 101	1.07	02:05	27	A	08:25	21	B	D	None
7A	Bel Marin Keys	US 101 to Commercial Blvd	0.20	00:50	19	C	01:38	15	C	D	None
8A	Sir Francis Drake Blvd	Butterfield Rd to Willow Rd	0.26	00:46	19	C	01:08	12	D	D	None
8B	Sir Francis Drake Blvd	San Anselmo Ave to Red Hill Ave	1.12	05:32	14	C	03:17	21	B	D	None
8C	Sir Francis Drake Blvd	College Ave to Toussin Ave	0.28	01:13	14	C	01:05	15	C	D	None
8D	Sir Francis Drake Blvd	College Ave to Wolfe Grade	0.61	01:35	23	B	01:40	24	B	D	None
8E	Sir Francis Drake Blvd	US 101 to Larkspur Landing Cir	0.46	**10:28**	**3**	**F**	01:26	19	C	D	None[2]
9A	Red Hill Ave	Sir Francis Drake Blvd to Second St	1.13	02:55	24	B	04:12	17	C	D	None
9B	Second St	US 101 to Marquard St	1.13	02:52	11	D	One Way Only			D	None
9C	Third St	US 101 to Marquard St	1.11	One Way Only			03:29	17	C	D	None
10A	Bridgeway[1]	Gate 5 Rd to Gate 6 Rd	0.17	00:28	20	B	00:29	21	B	D	None

Notes: 1. Data obtained from commercial sources.
2. Grandfathered Segment (No actions required).

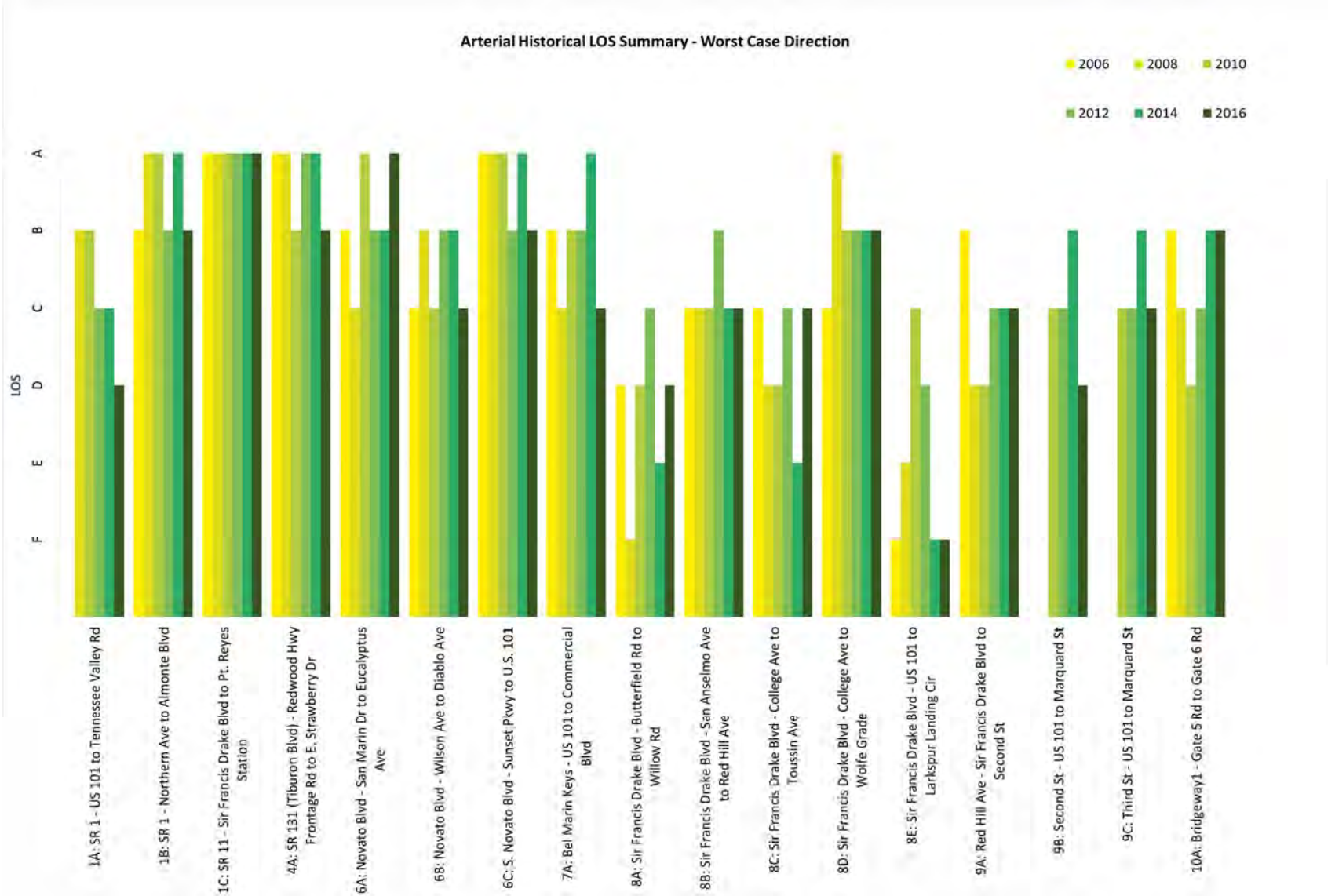
AM Peak Period – 2014 and 2016 LOS Results Comparison

PM Peak Period – 2014 and 2016 LOS Results Comparison

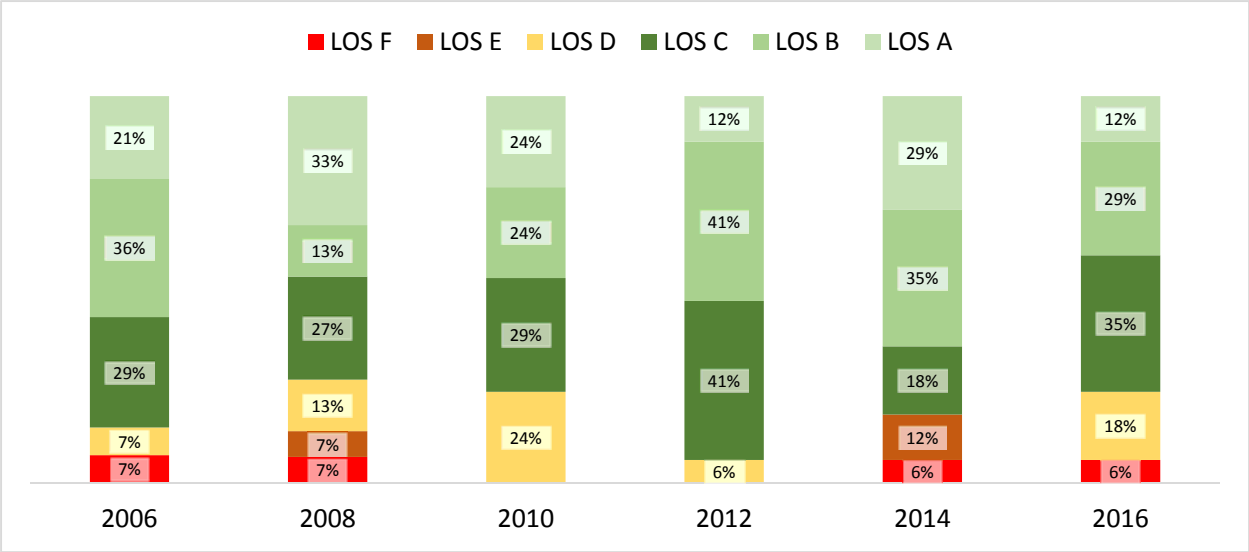
Table 8: Arterial Historical LOS Summary – PM Peak Period (Worst Case Direction)

ID	LOS Goal	Roadway	Segment	2006	2008	2010	2012	2014	2016
1A	D	SR 1	US 101 to Tennessee Valley Rd	-	B	B	C	C	D
1B	D	SR 1	Northern Ave to Almonte Blvd	B	A	A	B	A	B
1C	D	SR 1[1]	Sir Francis Drake Blvd to Pt. Reyes Station	A	A	A	A	A	A
4A	D	SR 131 (Tiburon Blvd)	Redwood Hwy Frontage Rd to E. Strawberry Dr	A	A	B	A	A	B
6A	D	Novato Blvd	San Marin Dr to Eucalyptus Ave	B	C	A	B	B	A
6B	D	Novato Blvd	Wilson Ave to Diablo Ave	C	B	C	B	B	C
6C	D	S. Novato Blvd	Sunset Pkwy to US 101	A	A	A	B	A	B
7A	D	Bel Marin Keys	US 101 to Commercial Blvd	B	C	B	B	A	C
8A	D	Sir Francis Drake Blvd	Butterfield Rd to Willow Rd	D	F	D	C	E	D
8B	D	Sir Francis Drake Blvd	San Anselmo Ave to Red Hill Ave	C	C	C	B	C	C
8C	D	Sir Francis Drake Blvd	College Ave to Toussin Ave	C	D	D	C	E	C
8D	D	Sir Francis Drake Blvd	College Ave to Wolfe Grade	C	A	B	B	B	B
8E	D	Sir Francis Drake Blvd	US 101 to Larkspur Landing Cir	F	E	C	D	F	F
9A	D	Red Hill Ave	Sir Francis Drake Blvd to Second St	B	D	D	C	C	C
9B	D	Second St	US 101 to Marquard St	-	-	C	C	B	D
9C	D	Third St	US 101 to Marquard St	-	-	C	C	B	C
10A	D	Bridgeway	Gate 5 Rd to Gate 6 Rd	B	C	D	C	B	B

Arterial Historical LOS Summary for PM Peak Period - Worst Case Direction



PM Peak Period - Historical Comparison of System Wide Arterial Performance



3.2 Freeway Level of Service

There are 10 freeway segments identified in the Marin County CMP network. Mixed flow lanes and HOV lanes are monitored separately.

3.2.1 Existing Freeway Level of Service (Mixed Flow)

In the AM peak period, all mixed flow freeway segments are performing at LOS E or better. The LOS results for the AM peak are shown in **Table 9.**

In the PM peak period, all mixed flow freeway segments except four are performing at LOS E or higher. Two US 101 NB segments and two I-580 EB segments are operating at LOS F. These are segments 3B, 3G, 5A, and 5B respectively. By comparison, only one I-580 EB segment performed at LOS F during the PM peak hour in 2014. On-going shoulder closures on the Richmond-San Rafael Bridge may have impacted the travel times recorded on Segments 5A and 5B. The LOS results for the PM peak are shown in **Table 10.**

Figures 3 and **4** illustrate the LOS results for each of the CMP Freeway segments in Marin County for 2016.

The comparison of LOS results, in the AM and PM peak hour in the peak direction, from 2012 and 2014 monitoring cycles is shown below.

3.2.2 CMP Freeway (Mixed Flow) Level of Service Performance Standard

The LOS standard to meet the CMP requirements is LOS E for Freeways and Expressways in the PM peak period. There is no LOS standard for AM peak period.

Segments 3B, 3G, and 5B are grandfathered, and therefore, no action is required. Segment 5A is not grandfathered. However, a mainline improvement to add a third eastbound lane is scheduled for completion in Fall 2017[2], which is anticipated to significantly ease eastbound congestion during the PM peak hour. Therefore, no action is currently required.

[2] The Bay Area Toll Authority (BATA) is spearheading the Richmond-San Rafael Bridge Access Improvements to improve mobility along the Interstate 580 corridor between Richmond and San Rafael. This project will convert the right shoulder to a third freeway lane from the Sir Francis Drake Boulevard on-ramp in Marin County to the Marine Street (Richmond Parkway/Point Richmond) exit in Contra Costa County.

Table 9: Freeway Mixed-Flow Lanes LOS Summary – AM Peak Period

ID	Roadway	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS Goal	Action
				Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg. Speed (mph)	LOS		
2A	SR 37	US 101 to Atherton Ave	2.60	02:29	63	A	03:24	46	E	E	None
3A	US 101	Golden Gate Bridge to Spencer Ave	1.50	01:40	54	C	01:39	54	C	E	None
3B	US 101	SR 131 (Tiburon Blvd) to Tamalpais Dr	1.70	01:38	62	A	01:37	63	A	E	None
3C	US 101	Sir Francis Drake Blvd to I-580	1.32	01:17	62	A	01:28	54	D	E	None
3D	US 101	I-580 to Mission Ave	1.22	01:11	61	A	01:18	56	C	E	None
3E	US 101	Mission Ave to N. San Pedro Rd	1.59	01:30	63	A	02:00	48	D	E	None
3F	US 101	Freitas Pkwy to Lucas Valley Rd	1.01	00:55	67	A	01:42	35	E	E	None
3G	US 101	North of Atherton to Sonoma Co. Line	5.96	05:35	64	A	07:32	47	D	E	None
5A	I-580	Sir Francis Drake Blvd to Marin Co. Line	0.70	00:41	61	A	00:57	44	E	E	None
5B	I-580	Bellam Blvd to Sir Francis Drake Blvd	1.23	01:12	61	A	01:18	57	C	E	None

AM Peak Period – 2014 and 2016 LOS Results Comparison

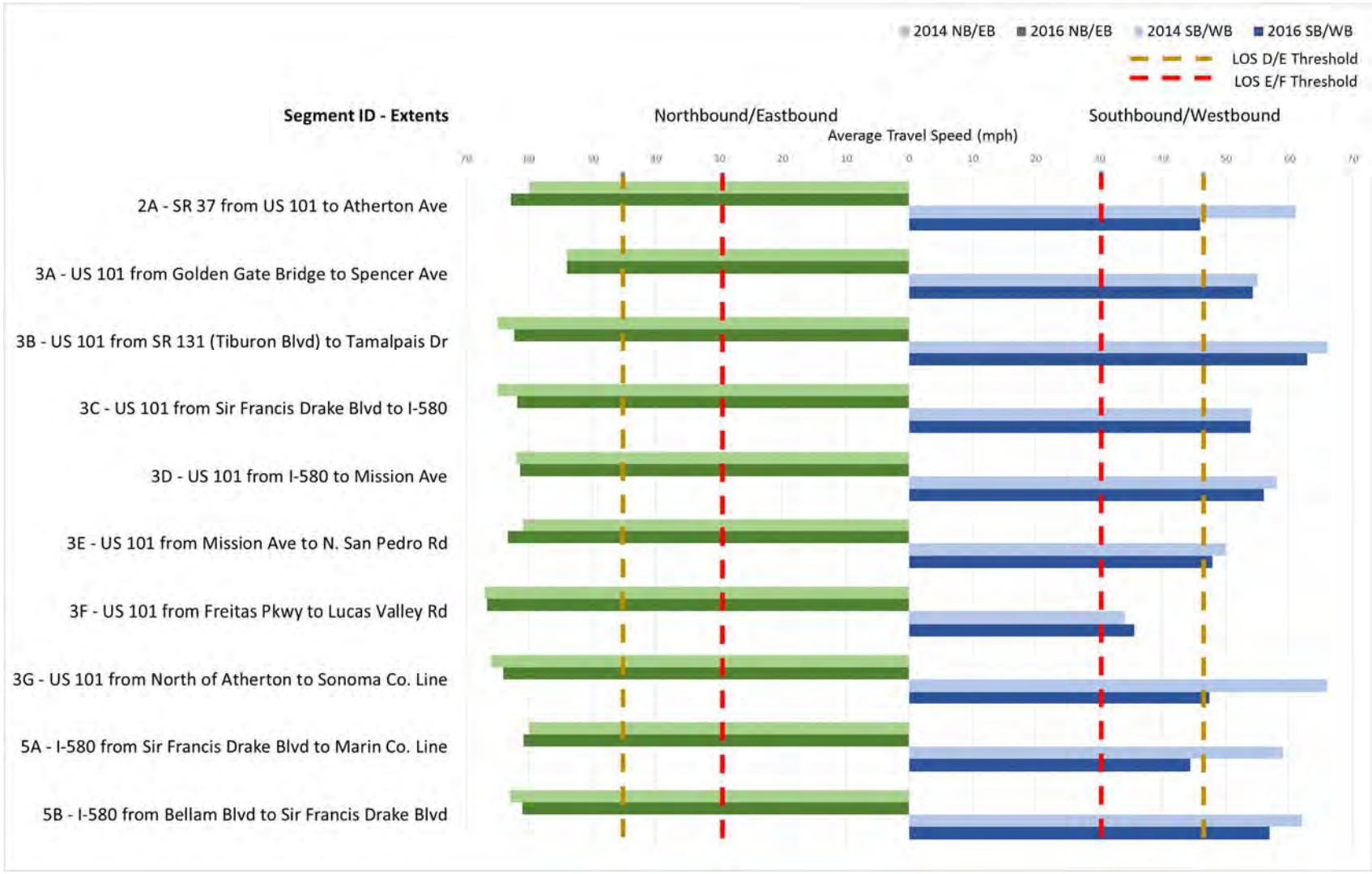


Table 10: Freeway Mixed-Flow Lanes LOS Summary – PM Peak Period

ID	Roadway	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS Goal	Action
				Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg. Speed (mph)	LOS		
2A	SR 37	US 101 to Atherton Ave	2.60	02:20	67	A	02:27	64	A	E	None
3A	US 101	Golden Gate Bridge to Spencer Ave	1.50	01:39	54	C	02:11	41	E	E	None
3B	US 101	SR 131 (Tiburon Blvd) to Tamalpais Dr	1.70	**03:59**	**26**	**F**	01:36	64	A	E	None[1]
3C	US 101	Sir Francis Drake Blvd to I-580	1.32	01:51	43	E	01:20	60	B	E	None
3D	US 101	I-580 to Mission Ave	1.22	01:33	47	D	01:16	58	B	E	None
3E	US 101	Mission Ave to N. San Pedro Rd	1.59	01:44	55	C	01:41	57	C	E	None
3F	US 101	Freitas Pkwy to Lucas Valley Rd	1.01	01:02	59	B	00:59	61	A	E	None
3G	US 101	North of Atherton to Sonoma Co. Line	5.96	**12:31**	**29**	**F**	05:39	63	A	E	None[1]
5A	I-580	Sir Francis Drake Blvd to Marin Co. Line	0.70	**01:52**	**22**	**F**	00:43	59	B	E	None[2]
5B	I-580	Bellam Blvd to Sir Francis Drake Blvd	1.23	**04:20**	**17**	**F**	01:13	61	A	E	None[1]

Notes: 1. Grandfathered Segment (No actions required).
2. Improvements to this segment are currently scheduled for construction in Fall 2017 (No action required, pending verification of performance after improvement construction).

PM Peak Period – 2014 and 2016 LOS Comparison

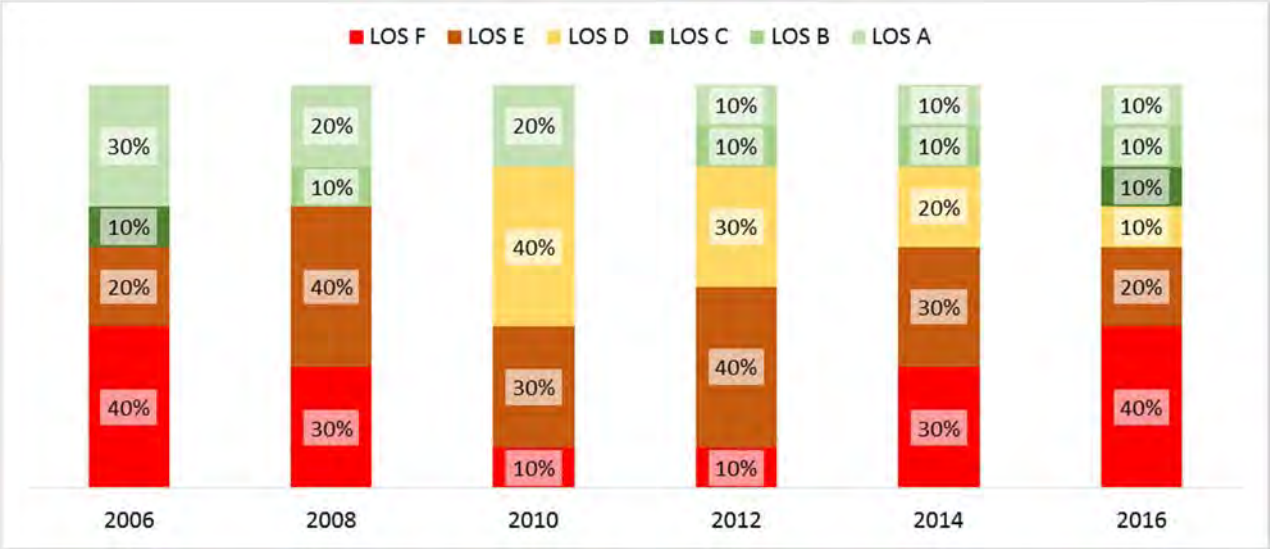
3.2.3 Historical Level of Service – Freeways Mixed-Flow

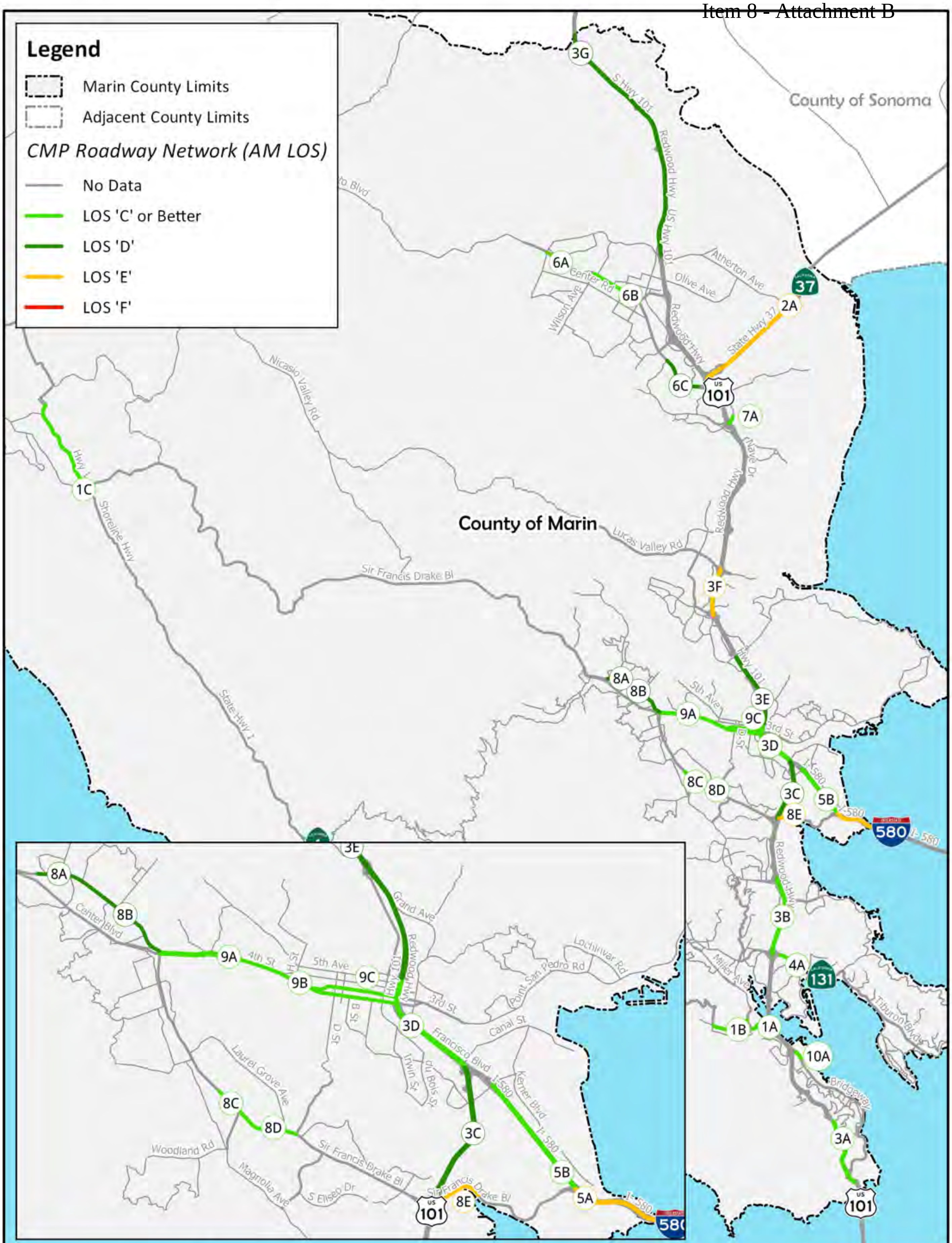
The chart and **Table 11** below present the historical LOS results for the PM peak period for mixed-flow lanes on freeways. Historical data is not presented for the AM peak period for this time-period, but is instead presented in the above charts for 2014. Across the years, many segments experience fluctuations in level of service. The fluctuations in the trends can be attributed to several factors, such as changes in traffic patterns, traffic volumes, unemployment, economy, etc.

Table 11: Freeway Historical LOS Summary – PM Peak Period

ID	LOS Goal	Roadway	Segment	2006	2008	2010	2012	2014	2016
2A	E	SR 37	US 101 to Atherton Ave	A	B	A	A	A	A
3A	E	US 101	Golden Gate Bridge to Spencer Ave	A	A	D	E	D	E
3B	E	US 101	SR 131 (Tiburon Blvd) to Tamalpais Dr	F	F	F	F	F	F
3C	E	US 101	Sir Francis Drake Blvd to I-580	F	E	D	D	D	E
3D	E	US 101	I-580 to Mission Ave	F	E	E	D	E	D
3E	E	US 101	Mission Ave to N. San Pedro Rd	C	F	E	D	B	C
3F	E	US 101	Freitas Pkwy to Lucas Valley Rd	A	A	D	B	E	B
3G	E	US 101	North of Atherton to Sonoma Co. Line	E	F	E	E	F	F
5A	E	I-580	Sir Francis Drake Blvd to Marin Co. Line	F	E	A	E	E	F
5B	E	I-580	Bellam Blvd to Sir Francis Drake Blvd	E	E	D	E	F	F

PM Peak Period - Historical Comparison of System Wide Freeway Performance

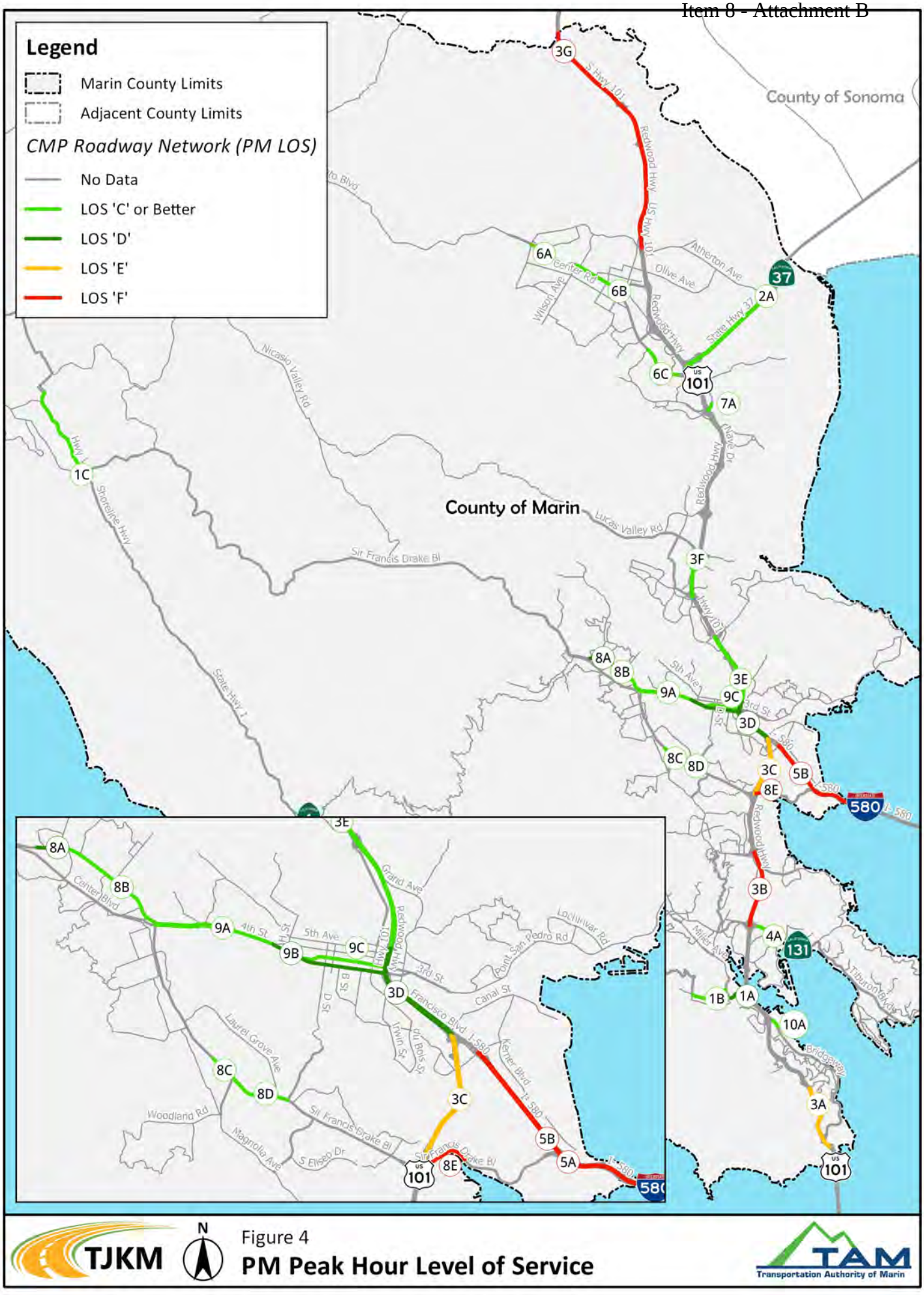




TJKM

Figure 3
AM Peak Hour Level of Service

TAM
Transportation Authority of Marin



TJKM

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Figure 4

PM Peak Hour Level of Service

TAM Transportation Authority of Marin

3.2.4 Freeway HOV Lane Level of Service

Six freeway segments in the CMP network have HOV lanes and all are located on US 101. The LOS standard to meet the CMP requirements is LOS E for Freeways and Expressways in the PM peak hour. There is no LOS standard for AM peak period.

The LOS results for the Freeway HOV segments are within the CMP LOS standards, except for Segment #3B. This segment is grandfathered, and does not need any action.

The LOS results for the AM and PM peaks are shown in **Table 12** and **Table 13** respectively. All but one segment performed at LOS D or better in the AM and PM peak periods. The US 101 HOV lane enforcement in the northbound direction is between the hours of 4:30-7:00 PM, Monday through Friday; and in the southbound direction is between the hours of 6:30-8:30 AM, Monday through Friday. **Figures 5** and **6** illustrate the LOS results for each of the CMP Freeway HOV segments in Marin County for 2016.

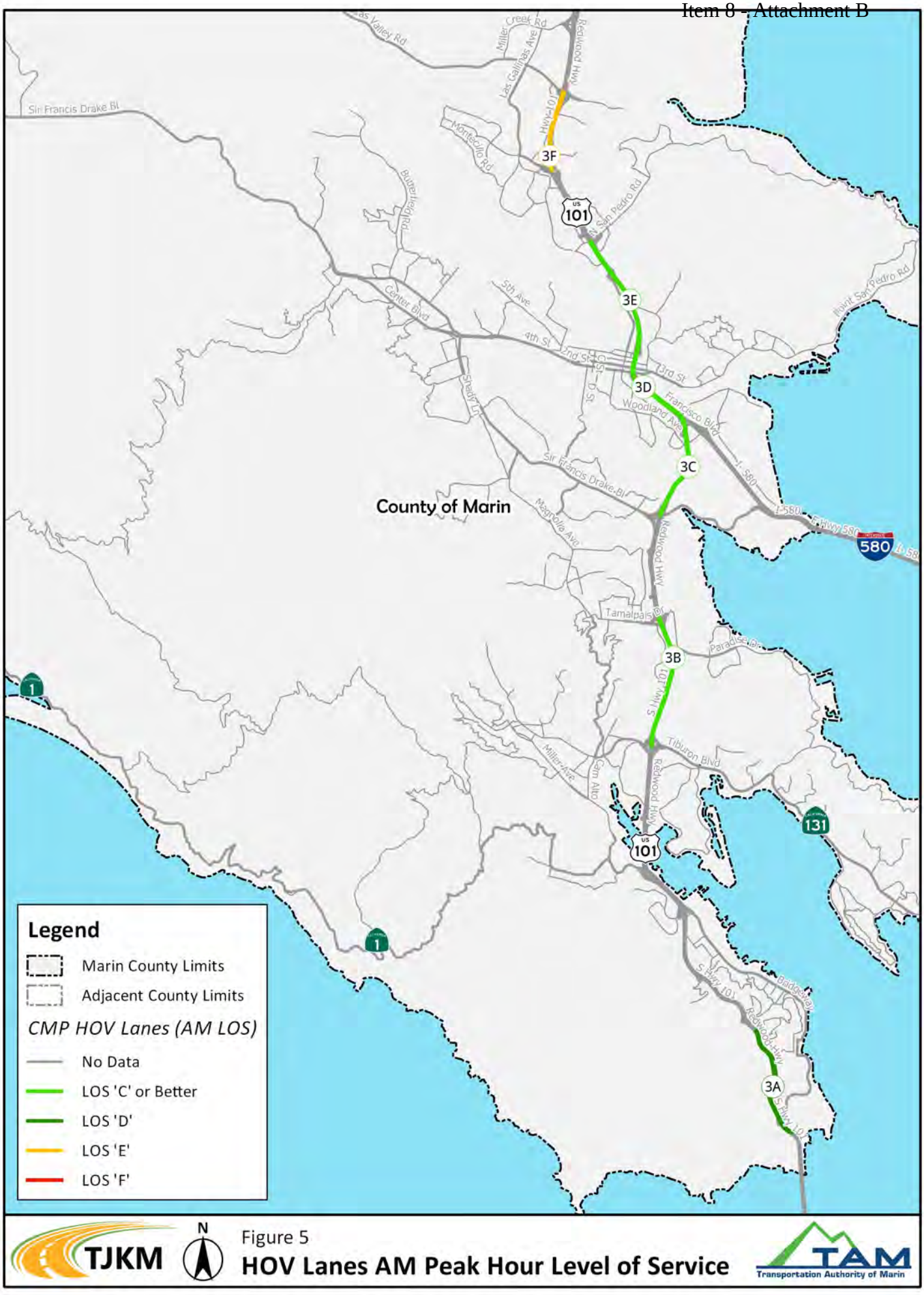
Table 12: US 101 Freeway HOV Lanes LOS Summary – AM Peak Period (SB Peak Direction)

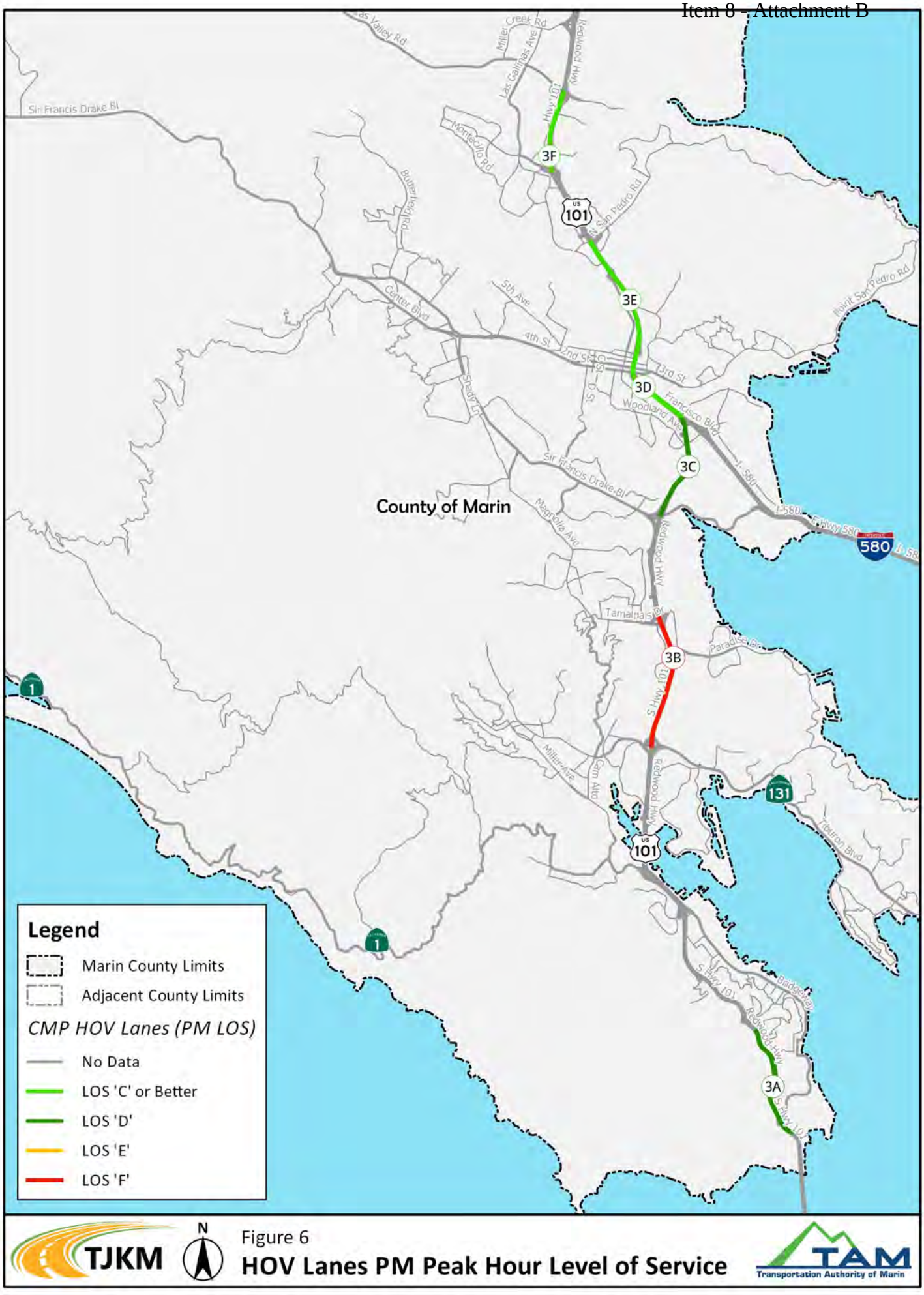
ID	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS Goals	Action
			Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg Speed (mph)	LOS		
3A HOV	Golden Gate Bridge to Spencer Ave	1.50	02:03	58	B	02:16	53	D	E	None
3B HOV	SR 131 (Tiburon Blvd) to Tamalpais	1.70	01:24	69	A	01:29	65	A	E	None
3C HOV	Sir Francis Drake Blvd to I-580	1.32	01:06	68	A	01:18	58	B	E	None
3D HOV	I-580 to Mission Ave	1.22	01:01	67	A	01:09	59	B	E	None
3E HOV	Mission Ave to N. San Pedro Rd	1.59	01:22	68	A	01:40	56	C	E	None
3F HOV	Freitas Pkwy to Lucas Valley Rd	1.01	00:47	73	A	01:26	43	E	E	None

Table 13: US 101 Freeway HOV Lanes LOS Summary – PM Peak Period (NB Peak Direction)

ID	Segment	Length (mi)	Northbound / Eastbound			Southbound / Westbound			LOS Goals	Action
			Avg. Time (mm:ss)	Avg. Speed (mph)	LOS	Avg. Time (mm:ss)	Avg. Speed (mph)	LOS		
3A HOV	Golden Gate Bridge to Spencer Ave	1.50	02:17	52	D	02:45	46	D	E	None
3B HOV	SR 131 (Tiburon Blvd) to Tamalpais	1.70	03:52	28	F	01:29	65	A	E	None[1]
3C HOV	Sir Francis Drake Blvd to I-580	1.32	01:35	48	D	01:15	61	A	E	None
3D HOV	I-580 to Mission Ave	1.22	01:16	54	C	01:04	64	A	E	None
3E HOV	Mission Ave to N. San Pedro Rd	1.59	01:37	57	B	01:27	64	A	E	None
3F HOV	Freitas Pkwy to Lucas Valley Rd	1.01	00:57	61	A	00:55	64	A	E	None

Notes: 1. Grandfathered Segment (No actions required)


Las Gallinas Valley Rd
Miller Creek Rd
Las Gallinas Ave
Redwood Hwy
Sir Francis Drake Bl
Montecillo Rd
Butterfield Rd
3F
US 101
San Pedro Rd
3E
Center Blvd
5th Ave
4th St
2nd St
3rd St
Point San Pedro Rd
3D
Woodland Ave
Francisco Blvd
Shady Ln
3C
I-580
County of Marin
Magnolia Ave
Redwood Hwy
Tamalpais Dr
Paradise Dr
3B
Tiburon Blvd
Miller Ave
Cam Alto
131
S Hwy 101
Redwood Hwy
3A
Legend
Marin County Limits
Adjacent County Limits
CMP HOV Lanes (AM LOS)
No Data
LOS 'C' or Better
LOS 'D'
LOS 'E'
LOS 'F'
N
TJKM
Figure 5
HOV Lanes AM Peak Hour Level of Service
TAM
Transportation Authority of Marin



TJKM

N

Figure 6

HOV Lanes PM Peak Hour Level of Service

TAM Transportation Authority of Marin

3.3 Travel Time Reliability

Travel time reliability is the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day. Travel time reliability is significant to many transportation users. Driver's value reliability as it allows them to make better use of their time. Many transportation planners and decision makers have started to consider travel time reliability as a performance measure throughout the United States. A more extensive discussion of these measures can be found in the Federal Highway Administration publication *Travel Time Reliability*, including guidance on the calculation methodology and application of travel time reliability measures.

Travel time reliability measures are relatively new, but a few have proven effective. Most measures compare high-delay days to those with an average delay. The most effective methods of measuring travel time reliability are 90th or 95th percentile travel times, buffer index, and planning time index, explained in the following sections. Related measurements include average travel time and free flow travel time.

3.3.1 90th or 95th Percentile Travel Times

This method, the *90th or 95th percentile travel times*, is perhaps the simplest method to measure travel time reliability. It estimates how bad delay will be on specific routes during the heaviest traffic days. The one or two bad days each month mark the 95th or 90th percentile, respectively. Users familiar with a route (such as commuters) can see how bad traffic is during those few bad days and plan their trips accordingly. This measure is reported in minutes.

3.3.2 Buffer Index

The *buffer index* represents the extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival.

For example, a buffer index of 40 percent means that for a trip that usually takes 20 minutes a traveler should budget an additional eight minutes to ensure on-time arrival. The additional eight minutes is called the buffer time. Therefore, the traveler should allow 28 minutes for the trip in order to ensure on-time arrival 95 percent of the time.

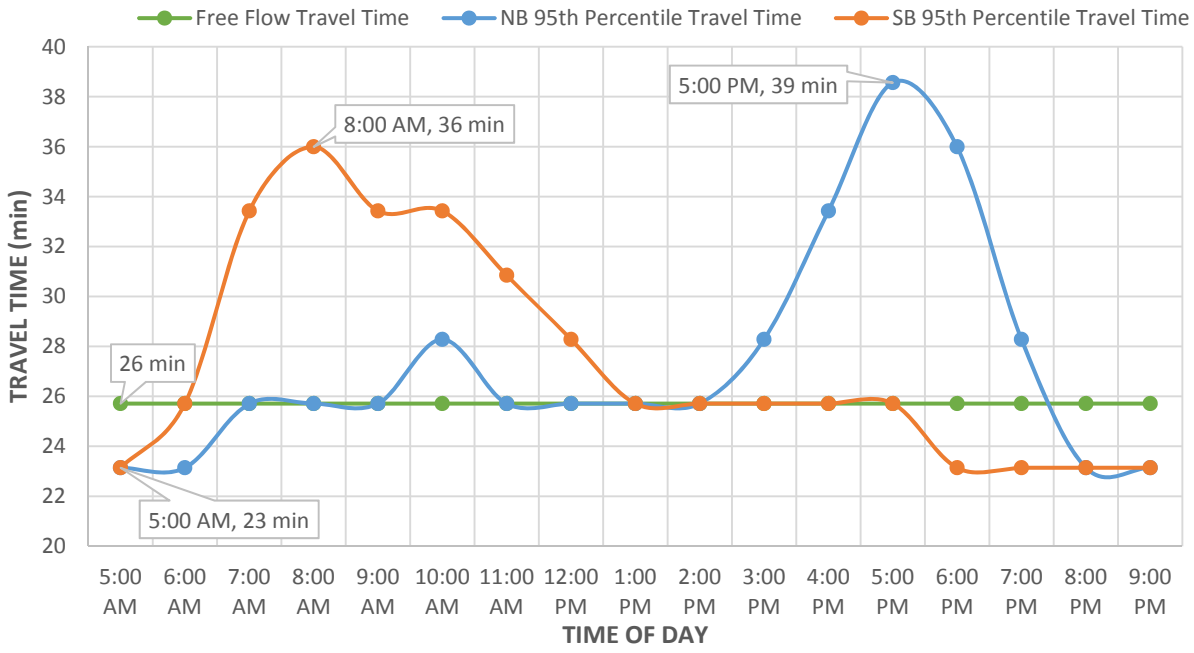
3.3.3 Planning Time Index

The *planning time index* represents how much total time a traveler should allow to ensure on-time arrival. While the buffer index shows the *additional* travel time that is necessary, the planning time index shows the *total* travel time that is necessary. The Planning Time Index is the ratio of the 95th percentile travel time to the free-flow travel time. For example, a planning time index of 1.60 means that for a trip that takes 15 minutes in light traffic a traveler should budget a total of 24 minutes to ensure on-time arrival 95 percent of the time.

The graph below compares the travel time along US 101 in Marin County under free flow conditions to the northbound and southbound 95th percentile travel times between 5:00 AM and 9:00 PM. Planning time index data was collected by TJKM from the Caltrans Performance Measurement System (PeMS) for midweek days during October 2016, excluding holidays and any days with adverse weather. Caltrans assumes a free flow speed of 60 miles per hour (mph) for calculating free flow travel time. Travel times were calculated using the total corridor length of 25.7 miles.

As this speed is below the posted speed limit of 65 mph, speeds increase during off peak times and result in actual 95th percentile travel times below the calculated free flow travel time.

US 101 – Marin County Travel Time Comparison



As this graph shows, 95th percentile travel times vary over the course of a day from approximately 23 minutes to 39 minutes in the northbound direction and from 23 minutes to 36 minutes in the southbound direction.

The free flow travel time along the same corridor is approximately 26 minutes, assuming a speed of 60 mph. Northbound traffic experienced more delays during the afternoon commute period, with a maximum planning time index of 1.5 at 5:00 PM. Southbound traffic experienced more delays during the morning commute period, with a maximum planning time index of 1.4 at 8:00 AM. It should be noted that the free flow speed of 60 mph is lower than the posted speed limit of 65 mph. In the evening and very early morning, 95th percentile travel times dropped below free flow travel times, indicating that traffic tended to speed up and approach the speed limit.

In addition to the above, TAM can also include factors such as seasonal variation, weather, and incidents to calculate the travel time along US 101 and I-580 within Marin County. Based on studies conducted within the United States, weather generally increases travel time by approximately 10 percent.

4.0 CURRENT TRANSIT OPERATIONS IN MARIN COUNTY

The transit network within Marin County is comprised of a variety of services. These include:

- General public transit bus service for both inter- and intra-county trips
- General public ferry service, serving trips between Marin County and San Francisco
- Specialized transit services aimed at serving the needs of the senior and disabled population in the County, including dial-a-ride, paratransit, and wheelchair accessible taxis
- Privately operated services, providing targeting service between specific locations, such as the service between Marin County and San Francisco International Airport

The Sonoma-Marin Area Rail Transit (SMART) service will likely be added next year as a CMP transit service. As of March 2017, construction of the first initial segment has been completed and testing is underway on the tracks for a projected opening in late Spring/early Fall of 2017.

The following sections provide a brief description of the transit services provided for inter- and intra-county transit travel. In addition, bus route information, headways, and overall transit ridership are summarized in each section.

4.1 Marin Transit

Marin Transit is the agency responsible for local transit service within Marin County. Marin Transit has responsibility for local transit services and contracts with other operators for three types of fixed route services within the county: large bus fixed route, shuttle, and rural service. Contracted providers include Golden Gate Transit, MV Transportation, and Marin Airporter. Marin Transit also contracts with Whistlestop Wheels to provide paratransit and dial-a-ride services within Marin County. Marin Transit added 19 percent service increases in Summer 2016.

Table 14 summarizes the regularly scheduled Marin Transit services. Marin Transit also operates the Marin Access Mobility Management Center, which is a one-call, transportation information and referral service, focused on meeting the mobility needs of Marin's older adults, disabled persons, and low-income residents. **Tables 15** and **16** summarize the CMP arterial and freeway segments utilized by the Marin Transit Bus Routes.

Transit service provided within Marin County by Marin Transit via contractors includes:

- *Local Service.* Nine routes operate entirely within Marin County on weekdays, with limited weekend service, contracted through Golden Gate Transit. Additional 10 routes operate as school-focused service on school days only, as detailed below. Since the 2015 CMP, Marin Transit has ceased operations on Route 45.
- *School Service.* Ten routes provide limited service on school days in Marin County, as well as select trips on Routes 17 and 23. All routes have operated continuously since the 2015 CMP, with the addition of Route 122 serving the College of Marin. Marin transit also provides contract support for yellow school bus service in the Mill Valley, Ross Valley and the Tiburon Peninsula.
- *Recreational Services*. A seasonal shuttle service, Route 66, operates between Muir Woods and Mill Valley. A supplemental route (66F) provides intermediate service via Marin City. Shuttle schedules are adapted to weekend and seasonal recreational travel demands. Marin Transit contracts with Golden Gate Transit to operate Route 66 in partnership with the National Park Service between May and October.

- *West Marin Stagecoach*. Marin Transit contracts with MV Transportation to operate the West Marin Stagecoach with one service route (Route 68) in West Marin. The Stagecoach provides weekday and weekend service to area residents. Route 65 has been removed.
- *Community Shuttle Service*. Marin Transit contracts with Marin Airporter to operate six shuttle bus routes providing limited service: Strawberry / Tiburon (Route 219); San Rafael / Fairfax (Route 228); Santa Venetia / San Rafael (Route 233); San Rafael / Contempo (Route 245); Hamilton Theater / San Marin Drive in Novato (Route 251); Indian Valley Campus / San Rafael (Route 257). Since the previous CMP update, Route 259 (San Rafael / Novato) ceased operation. Marin Airporter also provides airport shuttle service between Marin County and San Francisco Airport as its primary business, separate from Marin Transit operations.
- *Marin Access*. Marin Access provides transit services and information for the community's older adults, persons with disabilities, and low-income residents. This Marin Transit program contracts with Whistlestop Wheels to provide the following services: Paratransit, Catch-A-Ride, and Volunteer Driver.
- *Novato Dial-a-Ride*. Marin Transit contracts with Whistlestop Wheels to provide a dial-a-ride shuttle bus service that provides curb-to-curb pick-up and drop-off service available to all residents in the Novato service area.

Table 14: Marin Transit Routes - Peak Headways for Fixed-Route Service

As of March 2017			As of March 2015		
Route #	**Route Type: Description**	**Approx. Headways (minutes)**	**Route #**	**Route Type: Description**	**Approx. Headways (minutes)**
17	Local: San Rafael to Sausalito	30-60	17	Local: San Rafael to Sausalito	30-60
22	Local: San Rafael to Marin City	30-60	22	Local: San Rafael to Marin City	20-60
23	Local: Shoreline Pkwy to White Hill Middle School (Fairfax)	60	23	Local: San Rafael to White Hill MS	60
29	Local: San Rafael to Manor (Fairfax)	60	29	Local: San Rafael to Manor (Fairfax)	30-60
35	Local: San Rafael to Canal Area	30	35	Local: San Rafael to Canal Area	4-30
36	Local: San Rafael to Marin City	30	36	Local: San Rafael to Marin City	26-30
-	-	-	45	Local: San Rafael Kaiser Hospital North Gate	28-60
49	Local: San Rafael to Novato (Redwood Blvd & Olive Ave)	30-60	49	Local: San Rafael to Novato (Redwood Blvd & Olive Ave)	60
61	West Marin Stagecoach: Donahue & Terners (Marin City) to Bolinas Downtown	170	61	West Marin Stagecoach: Donahue & Terners (Marin City) to Bolinas Downtown	170
-	-	-	65	West Marin Stagecoach: Dillon Beach to Eastside Transit Center	WED 2 runs EB 1 run WB
66	Muir Woods Shuttle: Pohono Street Park & Ride Lot (Mill Valley) to Muir Woods	20-30 (Weekends)	66	Muir Woods Shuttle: Pohono Street Park & Ride Lot (Mill Valley) to Muir Woods	20-30 (Weekends)
68	West Marin Stagecoach: Inverness to San Rafael	60-120	68	West Marin Stagecoach: Inverness to San Rafael	60-120
71x	Local: Novato to Sausalito Ferry	30	71	Local: Novato to Marin City	30

As of March 2017			As of March 2015		
Route #	**Route Type: Description**	**Approx. Headways (minutes)**	**Route #**	**Route Type: Description**	**Approx. Headways (minutes)**
113	School: Paradise Cay to Redwood HS	1 run (AM) 1 run (PM)	113	School: Paradise Cay to Redwood HS	1 run (AM) 2 runs (PM)
115	School: Sausalito Ferry to St. Hilary School	2 runs (AM) 2 runs (PM)	115	School: Sausalito Ferry to St. Hilary School	2 runs (AM) 2 runs (PM)
117	School: East Corte Madera to Hall MS	2 runs (AM) 4 runs (PM)	117	School: East Corte Madera to Hall MS	2 runs (AM) 4 runs (PM)
119	School: Tiburon to Redwood HS	2 runs (AM) 1 run (PM)	119	School: Tiburon to Redwood HS	2 runs (AM) 2 runs (PM)
122	School: College of Marin to San Rafael Transit Center	10 runs (AM) 10 runs (PM)	-	-	-
125	School: San Rafael to Lagunitas	2 run (AM) 2 runs (PM)	125	School: San Rafael to Lagunitas	2 run (AM) 2 runs (PM)
139	School: Terra Linda HS to Lucas Valley	1 run (AM) 1 run (PM)	139	School: Terra Linda HS to Lucas Valley	1 run (AM) 1-2 runs (PM)
145	School: Terra Linda HS to San Rafael	1 run (AM) 1-2 runs (PM)	145	School: Terra Linda HS to San Rafael	1-2 runs (PM)
151	School: Hamilton (Novato) to San Marin HS	2 runs (AM) 2 runs (PM)	151	School: Hamilton (Novato) to San Marin HS	2 runs (AM) 2-3 runs (PM)
154	School: Olive Ave & Olive Ct to San Marin HS / Sinaloa MS	2 runs (AM) 2 runs (PM)	154	School: Olive Ave & Olive Ct to San Marin HS / Sinaloa MS	1 run (AM) 2 runs (PM)
219	Shuttle: Strawberry to Tiburon	30	219	Shuttle: Strawberry to Tiburon	30
228	Shuttle: San Rafael to Manor (Fairfax)	60	228	Shuttle: San Rafael to Manor (Fairfax)	60
233	Shuttle: San Rafael to Santa Venetia	60	233	Local: San Rafael to Santa Venetia	60
245	Shuttle: San Rafael to Contempo	60	-	-	-
251	Shuttle: Hamilton Theater to San Carlos & San Marin (Novato)	60	251	Shuttle: Hamilton Theater to San Carlos & San Marin (Novato)	60
257	Shuttle: Indian Valley Campus to San Rafael	60	257	Shuttle: Indian Valley Campus to San Rafael	60

Sources: Marin Transit website (2017); Marin CMP Update (2015).

Table 15: CMP Arterial Segments Utilized by Marin Transit Services

Arterial Segments			Transit Routes	PM Peak LOS
ID	Roadway	Segment		
1A	SR 1	US 101 to Tennessee Valley Rd	66, 66F	D
1B	SR 1	Northern Ave to Almonte Blvd	66, 66F	B
1C	SR 1[1]	Sir Francis Drake Blvd to Pt. Reyes Station	-	A
4A	SR 131 (Tiburon Blvd)	Redwood Hwy Frontage Rd to E. Strawberry Dr	219	B
6A	Novato Blvd	San Marin Dr to Eucalyptus Ave	251	A
6B	Novato Blvd	Wilson Ave to Diablo Ave	251	C
6C	S. Novato Blvd	Sunset Pkwy to US 101	-	B
7A	Bel Marin Keys	US 101 to Commercial Blvd	257	C
8A	Sir Francis Drake Blvd	Butterfield Rd to Willow Rd	23, 122, 68, 228	D
8B	Sir Francis Drake Blvd	San Anselmo Ave to Red Hill Ave	23, 68, 228	C
8C	Sir Francis Drake Blvd	College Ave to Toussin Ave	122, 68, 228	C
8D	Sir Francis Drake Blvd	College Ave to Wolfe Grade	68, 228	B
8E	Sir Francis Drake Blvd	US 101 to Larkspur Landing Cir	17, 68, 228	F
9A	Red Hill Ave	Sir Francis Drake Blvd to Second St	23	C
9B	Second St	US 101 to Marquard St	23	D
9C	Third St	US 101 to Marquard St	-	C
10A	Bridgeway[1]	Gate 5 Rd to Gate 6 Rd	66F	B

Table 16: CMP Freeway Segments Utilized by Marin Transit Services

Freeway Segments			Transit Routes	PM Peak LOS
ID	Roadway	Segment		
2A	SR 37	US 101 to Atherton Ave	-	A
3A	US 101	Golden Gate Bridge to Spencer Ave	-	E
3B	US 101	SR 131 (Tiburon Blvd) to Tamalpais Dr	17	F
3C	US 101	Sir Francis Drake Blvd to I-580	17, 228	E
3D	US 101	I-580 to Mission Ave	17	D
3E	US 101	Mission Ave to N. San Pedro Rd	245	C
3F	US 101	Freitas Pkwy to Lucas Valley Rd	-	B
3G	US 101	North of Atherton to Sonoma Co. Line	-	F
5A	I-580	Sir Francis Drake Blvd to Marin Co. Line	-	F
5B	I-580	Bellam Blvd to Sir Francis Drake Blvd	-	F

4.2 Golden Gate Transit

Golden Gate Transit operates transit services between Marin County and the Sonoma, San Francisco, and Contra Costa Counties. Golden Gate Transit is one of three operating divisions of the Golden Gate Bridge, Highway and Transportation District. **Table 17** lists the service routes with a comparison to the most recent CMP update in March 2015.

Additional bus service provided directly by Golden Gate Transit connects Marin County to other parts of the region. Inter-county bus routes that operate partly inside Marin County include the following services:

- *Transbay Basic Service.* Basic service routes operate all day, seven days a week, providing wheelchair accessible trunk-line service between the Transbay Terminal and Civic Center in San Francisco or Richmond BART, and various suburban centers within Marin and Sonoma Counties. They provide the "backbone" service within Marin County and between Marin and neighboring counties. The routes are 40/40x, 70/71, and 101/101X. Since the previous CMP update, Route 10 ceased operation.
- *Transbay Commute Service.* This service provides 17 routes that operate on non-holiday weekdays. Most services connect residential neighborhoods within Marin County to the San Francisco Financial District and Civic Center employment centers during the AM and PM commute periods. Other service connects Sonoma County with Marin County and San Francisco. Commute service is generally operated in the peak direction during commute hours only, and is not run at all during the midday and off-peak periods.

Table 17: Regional Golden Gate Bus Transit Routes and Peak Headways

As of March 2017			As of March 2015		
Route #	**Route Type: Description**	**Approx. Headways (minutes)**	**Route #**	**Route Type: Description**	**Approx. Headways (minutes)**
2	Commute: SF to Marin Headlands	30	2	Commute: SF to Marin Headlands	30
4	Commute: Mill Valley to SF	5-15	4	Commute: Mill Valley to SF	5-15
8	Commute: Tiburon to SF	2 runs (AM) 1 run (PM)	8	Commute: Tiburon to SF	2 runs (AM) 1 run (PM)
-	-	-	10	Basic: Strawberry to SF	30-60
18	Commute: College of Marin to SF	22-30	18	Commute: College of Marin to SF	22-30
24	Commute: Manor (Fairfax) to SF	8-30	24	Commute: Manor (Fairfax) to SF	8-30
25	Shuttle: Larkspur Ferry to Manor (Fairfax)	30	25	Shuttle: Larkspur Ferry to Manor (Fairfax)	30
27	Commute: San Anselmo to SF	15-60	27	Commute: San Anselmo to SF	15-60
30	Commute: San Rafael to SF	2 runs (AM) 1 run (PM)	-	-	-
37*	Shuttle-Larkspur Ferry to Smith Ranch Road	30	37*	Shuttle-Larkspur Ferry to Smith Ranch Road	30
38	Commute: Terra Linda to SF	2 runs (AM) 1 run (PM)	38	Commute: Terra Linda to SF	30
40/40x	Basic: San Rafael to Del Norte BART	30-60	40/42	Basic: San Rafael to Del Norte BART weekday	30-60
44	Commute: Marinwood to SF	2 runs (AM) 2 runs (PM)	44	Commute: Marinwood to SF	2 runs (AM) 2 runs (PM)
54	Commute: San Marin to SF	9-30	54	Commute: San Marin to SF	9-30
56	Commute: Novato to SF	30	56	Commute: Novato to SF	30
58	Commute: SF to Novato	30	58	Commute: SF to Novato	30
70/70x	Basic: Novato to SF	4-30	70/71	Basic: Novato to SF	4-30
72/72x	Commute: Santa Rosa to SF	10-30	72	Commute: Santa Rosa to SF	10-30
74	Commute: Santa Rosa to SF	30	74	Commute: Santa Rosa to SF	30
76	Commute: East Petaluma to SF	25-30	76	Commute: East Petaluma to SF	25-30
92	Commute: Marin City to SF	30-60	92	Commute: Marin City to SF	30-60
93	Commute: GG Toll Plaza to SF Civic Center	10-30	93	Commute: GG Toll Plaza to SF Civic Center	10-30
97	Commute: Larkspur Ferry to SF	1 run (AM)	97	Commute: Larkspur Ferry to SF	1 run (AM)
101/ 101x	Basic: Santa Rosa to SF	60	101/ 101x	Basic: Santa Rosa to SF	60

Sources: Golden Gate Transit Website (2017); Marin CMP Update (2015).

4.3 Ferry Services

Three organizations provide Ferry service in Marin County:

- *Golden Gate Ferry Service.* The Golden Gate Bridge, Highway and Transportation District operates ferry services from Larkspur and Sausalito to San Francisco via conventional and high-speed ferries. The Larkspur Ferry provides more service to San Francisco, with headways between 30 and 55 minutes during the weekday commute periods. The Sausalito Ferry provides less frequent service to San Francisco and longer headways between 50 and 90 minutes during the weekday commute periods. Both ferries transport people to the San Francisco Ferry Building. The San Francisco Giants Game Ferry (National League Baseball) is an additional ferry service that operates on game days. This ferry runs until 30 minutes after the final out of the ballgame and runs about 60 minutes from Larkspur to AT&T Park.
- *Blue and Gold Fleet.* The Blue and Gold Fleet operates both commuter and recreational ferry service from Sausalito to Fisherman's Wharf in San Francisco. Blue and Gold also provides recreational service between Angel Island and San Francisco, Oakland, and Vallejo.
- *Angel Island Tiburon Ferry.* The Angel Island Tiburon Ferry operates recreational service between Angel Island and Downtown Tiburon. Service varies throughout the year; headways are one-two hours on weekdays and one-three hours on weekends; on weekends from April through October, headways are one hour and from November through March, are one-two hours. No weekday service is offered from November through February except by reservation, and Wednesday-Friday service is offered in the month of March.

4.4 Summary of Fixed Route Services and Boardings

The transit routes managed by Marin Transit are routinely monitored for performance. The recent dedication of additional resources has led to an expansion of local transit service, which in turn has increased local boardings. These trends are illustrated in **Table 18** and Transit Ridership Trends Chart, which show ridership trends for Marin Transit Fixed Route Service, Golden Gate Transit Bus, and Ferry Operations.

- As the table shows, demand for the Golden Gate Transit basic and commuter bus services to and from San Francisco have decreased slightly in the last year by approximately 2 percent.
- Golden Gate Ferry Service has experienced decreased in ridership during the last two fiscal years, approximately 5 percent increase from 2013-2014 to 2015-2016.
- Marin Transit Fixed Route Service showed a decrease of 5 percent in ridership from 2013-2014 to 2015-2016 with an increase of 3 percent in revenue hours.
- Marin Access Services have a slight increase in ridership of approximately 2 percent with a 1 percent reduction in revenue hours in fiscal year 2015-2016. There was much larger bump in both ridership and revenue hours in the fiscal year previous 2014-2015.

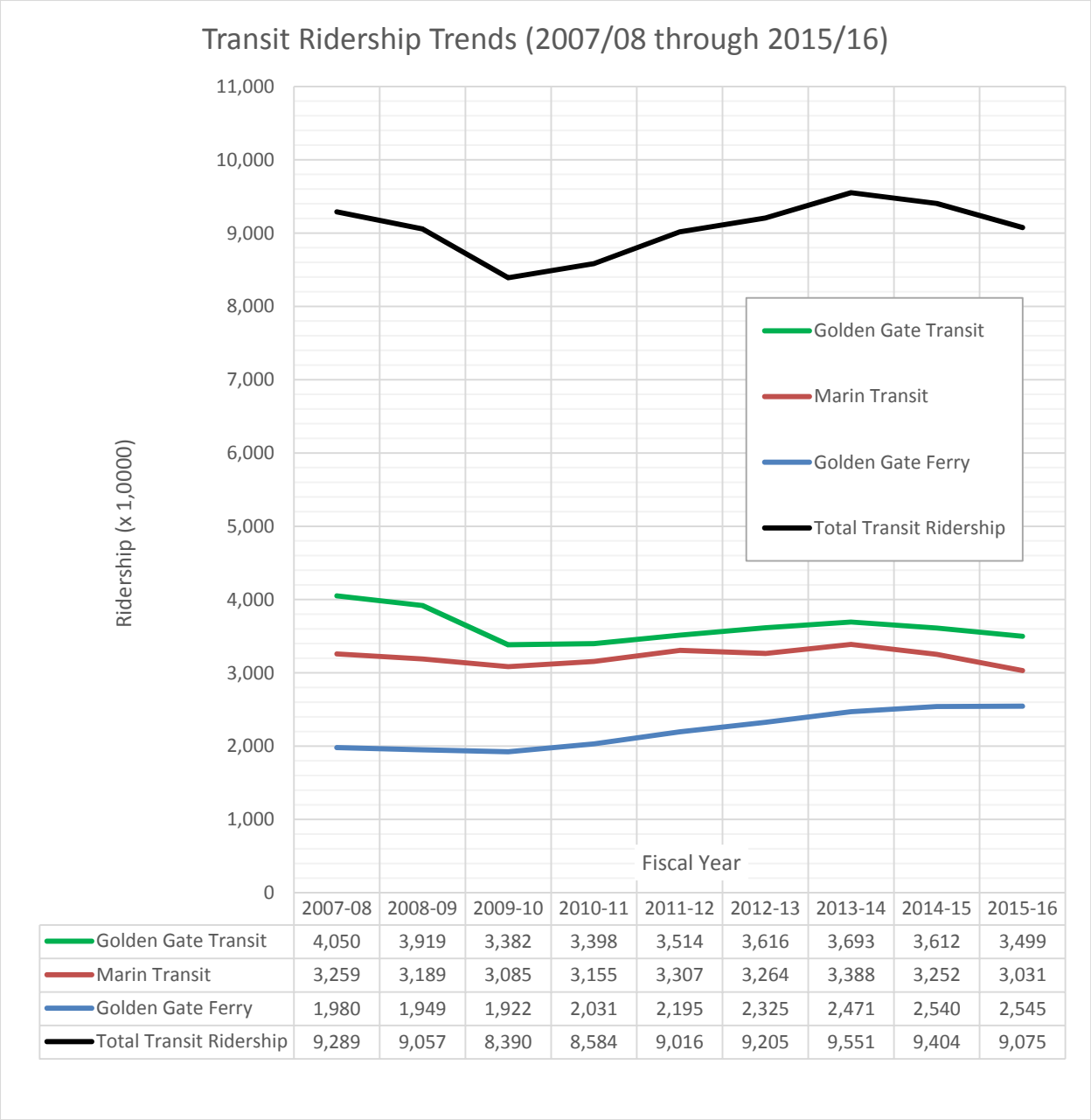
Tables 15 and **16** provided in Section 4.1. Marin Transit summarize the CMP segments utilized by the Marin Transit Bus Services and the LOS for each segment during the PM peak hour showing the impact on transit services using them.

Table 18: Transit Ridership Trends in Marin County

Fiscal Year	Annual Revenue Hours	Annual Boardings
Golden Gate Basic and Commuter Service[1]:		
2010-2011	333,000	3,398,098
2011-2012	325,000	3,513,639
2012-2013	341,000	3,615,851
2013-2014	321,000	3,692,851
2014-2015	337,000	3,612,000
2015-2016	N/A	3,499,000
Golden Gate Ferry Service[1]:		
2010-2011	14,000	2,031,219
2011-2012	13,000	2,195,414
2012-2013	13,000	2,324,874
2013-2014	14,000	2,470,583
2014-2015	14,000	2,540,000
2015-2016	14,000	2,545,000
Marin Transit Fixed Route Service[2]:		
2010-2011	117,011	3,154,571
2011-2012	136,951	3,307,179
2012-2013	136,227	3,263,903
2013-2014	147,111	3,387,925
2014-2015	152,801	3,252,116
2015-2016	156,803	3,031,450

Sources: 1. Comprehensive Annual Financial Report FY 2015-2016. Golden Gate Bridge Highway and Transportation District. (http://goldengate.org/organization/annual_reports.php)
2. System Performance Summary for FY 2010-2011, FY 2011-2012, FY 2012-2013, FY 2013-2014, 2014-2015, 2015-2016, Marin Transit. (http://www.marintransit.org/monitoringreports.html)

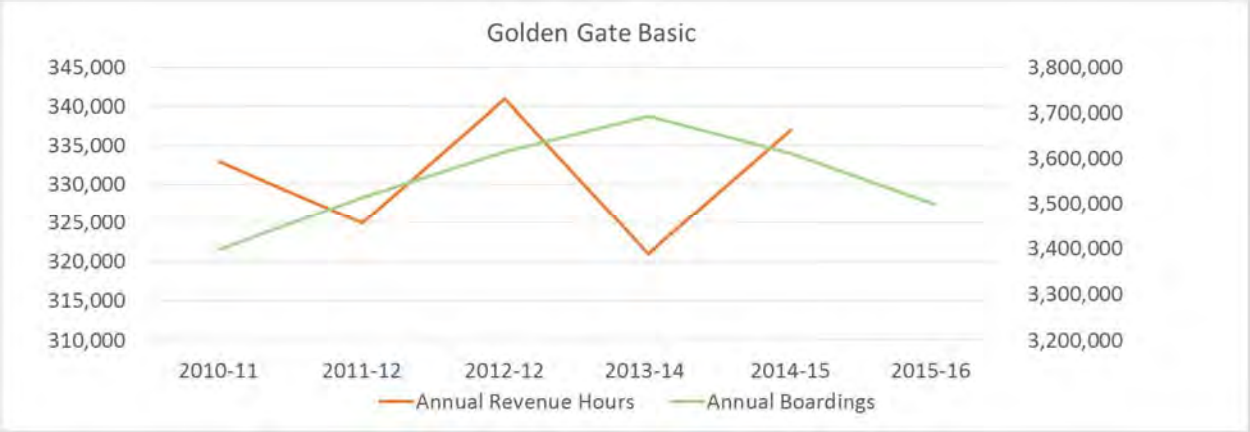
Transit Ridership Trends (2007 / 2008 through 2015 / 2016)



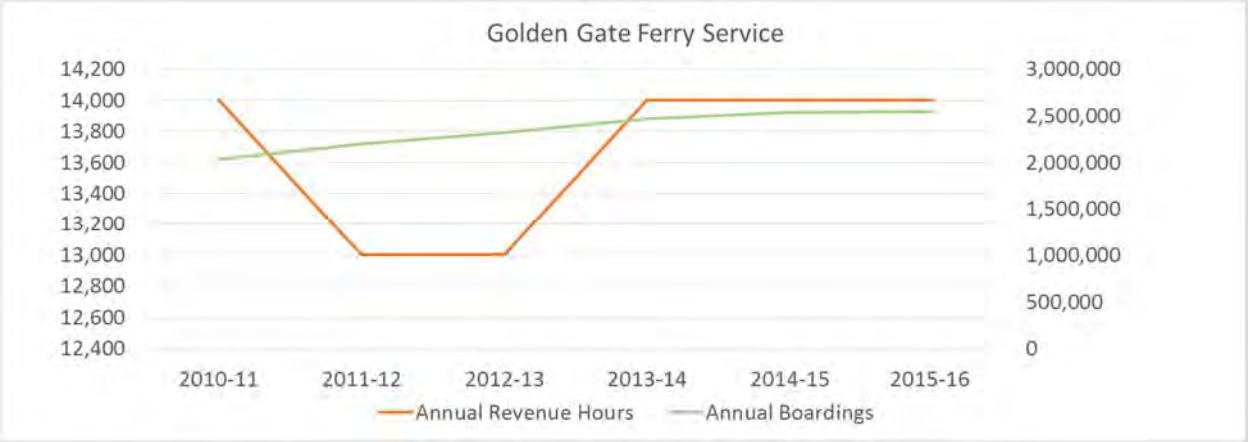
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Golden Gate Transit	4,050	3,919	3,382	3,398	3,514	3,616	3,693	3,612	3,499
Marin Transit	3,259	3,189	3,085	3,155	3,307	3,264	3,388	3,252	3,031
Golden Gate Ferry	1,980	1,949	1,922	2,031	2,195	2,325	2,471	2,540	2,545
Total Transit Ridership	9,289	9,057	8,390	8,584	9,016	9,205	9,551	9,404	9,075

The trends for annual revenue hours and boardings for each of the Golden Gate Transit Basic and Commuter Services, Golden Gate Ferry Service, and Marin Transit Fixed Route Service between 2010-2011 and 2015-2016 were compared and illustrated in the Annual Revenue Hours and Boardings Trends Charts provided below.

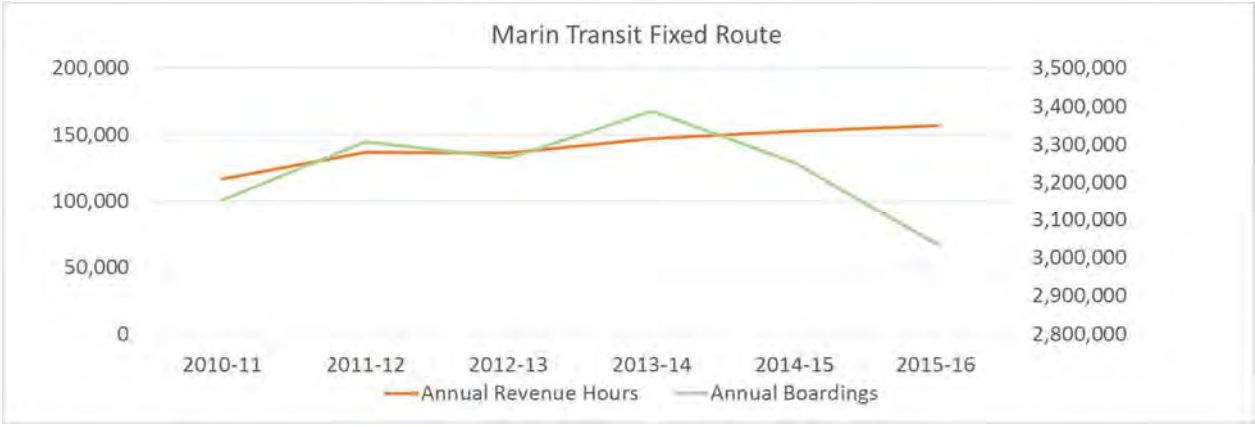
Annual Revenue Hours and Boardings Trends for Golden Gate Transit Basic and Commuter Services (2010 / 2011 through 2015 / 2016)



Annual Revenue Hours and Boardings Trends for Golden Gate Ferry Service (2010 / 2011 through 2015 / 2016)



Annual Revenue Hours and Boardings Trends for Marin Transit Fixed Route Service (2010 / 2011 through 2015 / 2016)



4.5 Specialized Transit Services

- *Marin Access*. Marin Transit contracts with Whistlestop Wheels to provide local paratransit services that are available during the same hours and days of the week as comparable local and inter-county fixed-route, non-commute bus services. The service is a door-to-door ridesharing program that has approximately 40 lift-equipped vehicles available for use. Approximately 162,511 annual passenger trips are provided on Marin Access Paratransit service.

Inter-county paratransit service is provided seven days a week, under an agreement between Golden Gate Transit and Marin Transit. The inter-county service area includes Sonoma, San Francisco, and Contra Costa County in addition to Marin County. Statistics for this service are included in **Table 19.** The demand for paratransit service has grown in recent years as more Marin County residents have become eligible for the service and medical providers and residents become more aware of paratransit service.

Table 19: Marin Access Performance Statistics, FY 2011 to FY 2016

Fiscal Year	Annual Revenue Hours	Annual Passenger Trips
2010-2011	53,127	116,970
2011-2012[1]	49,012	119,666
2012-2013[2]	59,589	143,417
2013-2014	57,389	158,187
2014-2015	60,417	172,512
2015-2016	58,756	162,511

Notes: 1 Volunteer Driver Program added in FY 2011-2012.
2 Catch-A-Ride Program added in FY 2012-2013.
Source: System Performance Summary for FY 2010-2011, FY 2011-2012, FY 2012-2013, FY 2013-2014, 2014-2015, 2015-2016, Marin Transit. (http://www.marintransit.org/monitoringreports.html)

- *Volunteer Driver*. Marin Transit manages two Volunteer Driver programs for seniors who have difficulty using fixed route or paratransit services: 1) the Safe Transport and Reimbursement (STAR) Program operated by Whistlestop Wheels in Eastern Marin, and 2) the TripTrans West Marin Volunteer Driver Program operated by West Marin Senior Services in Western Marin. Both programs provide drivers with mileage reimbursements for their services. During the 2015-2016 fiscal year, the volunteer driver program served 16,570 unlinked passengers during weekday service.
- *Catch-a-Ride*. Marin Transit manages the Catch-A-Ride program, which allows eligible Marin County residents to receive a discounted ride in taxis and other licensed vehicles throughout Marin County. To be considered eligible for the program, participants must be a resident of Marin County and at least 80 years of age, at least 60 years of age and unable to drive, or be eligible for paratransit under the Americans with Disabilities Act. The program pays a discounted rate of the fare based on the mileage of the trip, rather than the meter rate. Fiscal year 2015-2016, the program had 16,520 trips. Marin Catch-A-Ride is funded by Marin's voter approved vehicle registration fee, Measure B.
- *School Transportation.* Marin Transit provides school transportation services including supplemental school bus service and contracted yellow school bus service.

5.0 BICYCLE AND PEDESTRIAN ACTIVITY

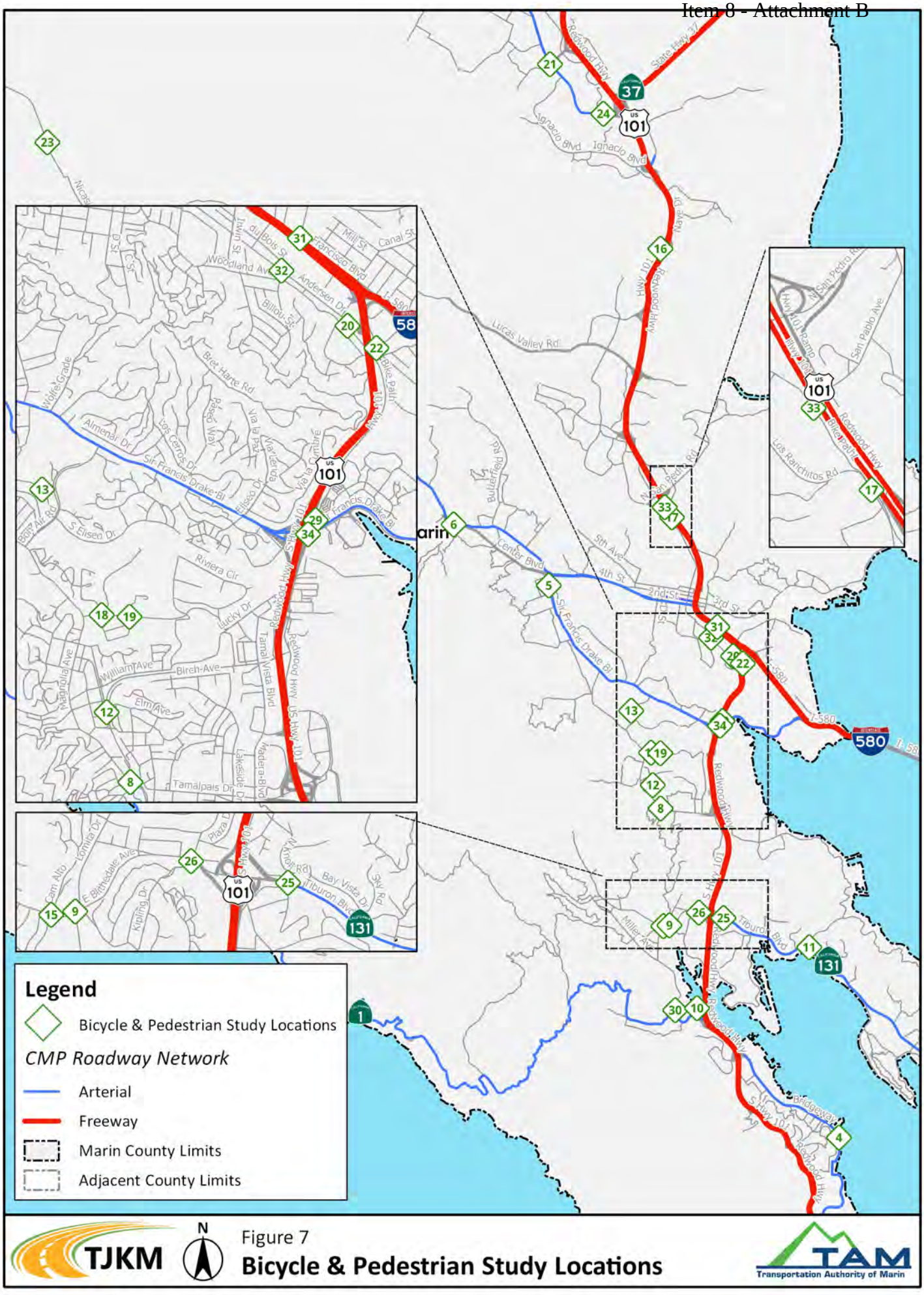
Bicycle and pedestrian activity was monitored at various locations in Marin County that were previously studied in the 2014 Transportation System Monitoring Report. **Table 20** lists the bicycle and pedestrian count locations, consistent with the 2014 study. **Figure 7** presents a map of the bicycle and pedestrian count locations. The bicycle and pedestrian monitoring report is not required for the CMP and is therefore presented for informational purposes only. Bicycle and pedestrian volumes were collected at 28 locations. This includes seven new locations, noted in **Table 18**, relative to the 2014 report. Locations 27 and 28 from the 2014 report, pedestrian paths at the US 101 northbound and southbound ramps in Tiburon, were not included in 2016.

Bicycle and pedestrian counts we collected on weekdays for a 14-hour period from 6:00 AM to 8:00 PM and for a four-hour weekend midday period between 10:00 AM and 2:00 PM. The surveys also included adult and youth demographic attributes. The total bicycle and pedestrian volumes were then compared to the historical data from previous years.

Table 20: Bicycle and Pedestrian Count Locations

ID1	Count Location Description and City
1	Tiburon Boulevard @ Main Street, Tiburon
4	Bridgeway @ Princess Street, Sausalito
5	San Anselmo Avenue @ Tunstead Avenue (Southern Intersection), San Anselmo
6	Broadway @ Bolinas Road, Fairfax
8	Magnolia Avenue @ Ward Street, Larkspur
9	Mill Valley-Sausalito Path @ E. Blithedale Avenue, Mill Valley
10	Mill Valley-Sausalito Path @ Tennessee Valley Path Junction, Tam Junction
11	Tiburon Bike Path @ Blackie's Pasture/McKegney Green, Tiburon
12	Larkspur-Corte Madera Path @ Baltimore Avenue, Larkspur
13	Corte Madera Creek Path @ Bon Air Road, Greenbrae
15	Camino Alto @ E. Blithedale Avenue, Mill Valley
16	Pacheco Hill Path @ Alameda del Prado, Novato
17	Los Ranchitos Road @ Lincoln Hill Multi-Use Pathway, San Rafael
18	Doherty Drive @ Larkspur Plaza Drive/Rose Lane West, Larkspur
19[2]	Doherty Drive @ Rose Lane East, Larkspur
20	Andersen Drive @ Cal Park Tunnel Path, San Rafael
21	S. Novato Boulevard @ Rowland Way, Novato
22	Bellam Boulevard @ Andersen Drive, San Rafael
23	Nicasio Valley Road @ Nicasio School, Nicasio
24	Enfrente Bike Path @ S. Novato Boulevard, Novato
25	Tiburon Boulevard @ S. Knoll Road, Mill Valley
26	E. Blithedale Avenue @ Tower Drive, Mill Valley
29[2]	Central Marin Ferry Connector Bridge @ Sir Francis Drake Boulevard, Larkspur
30[2]	Almonte Boulevard @ Shoreline Highway, Mill Valley
31[2]	Francisco Boulevard E. @ Bay Street, San Rafael
32[2]	Andersen Drive @ Du Bois Street, San Rafael
33[2]	Merrydale Road @ Lincoln Hill Multi-Use Pathway, San Rafael
34[2]	US 101 NB Off-Ramp @ Marin County Bike Route 20 / Sir Francis Drake Boulevard, Larkspur

Notes: 1. ID Numbers are non-sequential to retain consistency with 2014 Monitoring Report and previous reports.
2. New count location for 2016


Legend
Bicycle & Pedestrian Study Locations
CMP Roadway Network
Arterial
Freeway
Marin County Limits
Adjacent County Limits
TJKM
N
Figure 7
Bicycle & Pedestrian Study Locations
TAM
Transportation Authority of Marin

5.1 Bicycle and Pedestrian Volumes

Raw bicycle and pedestrian counts were processed into two-hour peak periods, shown in **Table 21**. Volumes are reported for the two-hour periods specified in the 2014 Monitoring Report (weekday 7:00-9:00 AM, weekday 4:00-6:00 PM, and weekend 12:00-2:00 PM) to retain consistency between monitoring years. As was the case in 2014, it should be noted that conducting 14-hour counts showed an offset in the peak periods for bicycle and pedestrian users relative to vehicular traffic peaks. This shift in peak activity by mode is discussed later in this section. It should also be noted that comparisons between years for single day data collection efforts are less reliable for pedestrian and bicycle volumes, as opposed to vehicular volumes, as slight to moderate changes in weather patterns are much more likely to cause shifts in travel behavior in these modes than for motorists.

During the weekday monitoring, overall pedestrian activity was highest during the two-hour PM peak period, while overall bicycle activity was similar in both peak periods, but slightly higher during the two-hour AM peak period. This system-wide observation varied considerably from location to location, however. During the weekend two-hour midday peak period, overall bicycle and pedestrian activity nearly doubled from what was observed during the weekdays, most notably for bicycles.

The Bridgeway and Princess Street location in Sausalito, CA (ID# 4) experienced the highest volumes of pedestrians and bicyclists of all 28 locations monitored. This location experienced 270 bicyclists in the AM peak period (up from 181 in 2014) and 349 bicyclists in the PM peak period (up from 234 in 2014). During the weekend midday peak period, this location recorded 1,577 bicyclists.

During the AM peak period, 134 pedestrians were observed at the Bridgeway and Princess Street location, up from 101 in 2014. During the PM peak period, 866 pedestrian were observed, up from 586 in 2014. During the weekend midday peak period, 2,883 pedestrians were observed, an increase from 2,513 in 2014.

For bicycles, the South Novato Boulevard and Roland Way (ID# 21) and Bellam Boulevard and Andersen Drive (ID# 22) locations had the lowest observations in the AM peak period with only 8 bicyclists each. During the PM peak period, the Enfrente Bike Path at South Novato Boulevard (ID# 24) had the lowest bicycle observations, with a count of 12. During the weekend peak hour, Bellam Boulevard and Andersen Drive had the lowest observation with 13 bicyclists.

For pedestrians, the lowest observed activity occurred at Nicasio Valley Road at Nicasio School (ID# 23) with no recorded pedestrian counts at any weekday or weekend data collection periods on this rural facility.

Table 21: 2-Hour Bicycle and Pedestrian Count Volumes for Weekdays and Weekends

ID	Count Location Description	Weekday AM Peak (7-9 AM)			Weekday PM Peak (4-6 PM)			Weekend Midday Peak (12-2 PM)			Weekday 14-Hour Total (6 AM–8 PM)		
		Peds	Bikes	Total	Peds	Bikes	Total	Peds	Bikes	Total	Peds	Bikes	Total
1	Tiburon Blvd @ Main St	258	47	305	293	87	380	315	253	568	1,377	373	1,750
4	Bridgeway @ Princess St	134	270	404	866	349	1,215	2,883	1,577	4,460	4,865	1,929	6,794
5	San Anselmo Ave @ Tunstead Ave	154	77	231	440	114	554	154	263	417	2,151	515	2,666
6	Broadway @ Bolinas Rd	237	75	312	381	135	516	550	293	843	1,892	577	2,469
8	Magnolia Ave @ Ward St	120	50	170	306	55	361	391	163	554	1,530	326	1,856
9	Mill Valley-Sausalito Path @ E. Blithedale Ave	83	192	275	59	89	148	55	411	466	287	600	887
10	Mill Valley-Sausalito Path @ Tennessee Valley Path Junction	105	278	383	135	209	344	64	756	820	654	1,276	1,930
11	Tiburon Bike Path @ Blackie's Pasture / McKegney Green	7	23	30	16	16	32	16	35	51	76	87	163
12	Larkspur-Corte Madera Path @ Baltimore Ave	112	116	228	127	78	205	84	141	225	601	429	1,030
13	Corte Madera Creek Path @ Bon Air Rd	118	71	189	74	96	170	61	67	128	473	368	841
15	Camino Alto @ E. Blithedale Ave	30	64	94	31	36	67	43	208	251	148	291	439
16	Pacheco Hill Path @ Alameda del Prado	3	24	27	1	24	25	3	28	31	23	126	149
17	Los Ranchitos Rd @ Lincoln Hill Multi-Use Pathway	4	33	37	10	35	45	3	53	56	52	184	236
18	Doherty Dr @ Larkspur Plaza Dr / Rose Ln West	128	141	269	0	69	69	225	61	286	413	422	835
19	Doherty Dr @ Rose Ln East	92	108	200	57	54	111	386	56	442	926	329	1,255
20	Andersen Dr @ Cal Park Tunnel Path	18	80	98	20	96	116	31	89	120	124	414	538
21	S. Novato Blvd @ Rowland Wy	53	8	61	39	29	68	30	25	55	379	128	507
22	Bellam Blvd @ Andersen Dr	45	8	53	38	28	66	31	13	44	208	58	266
23	Nicasio Valley Rd @ Nicasio School	0	10	10	0	22	22	0	165	165	0	96	96
24	Enfrente Bike Path @ S. Novato Blvd	6	17	23	10	12	22	3	27	30	54	84	138

ID	Count Location Description	Weekday AM Peak (7-9 AM)			Weekday PM Peak (4-6 PM)			Weekend Midday Peak (12-2 PM)			Weekday 14-Hour Total (6 AM–8 PM)		
		Peds	Bikes	Total	Peds	Bikes	Total	Peds	Bikes	Total	Peds	Bikes	Total
25	Tiburon Blvd @ S. Knoll Rd	5	36	41	8	31	39	3	111	114	62	176	238
26	E. Blithedale Ave @ Tower Dr	27	46	73	20	44	64	14	115	129	158	231	389
29	Central Marin Ferry Connector Bridge @ Sir Francis Drake Blvd	12	70	82	23	91	114	11	95	106	158	372	530
30	Almonte Blvd @ Shoreline Hwy	45	100	145	72	36	108	48	134	182	269	279	548
31	Francisco Blvd E. @ Bay St	109	37	146	76	80	156	31	36	67	614	260	874
32	Andersen Dr @ Du Bois St	29	81	110	27	85	112	25	90	115	174	356	530
33	Merrydale Rd @ Lincoln Hill Multi-Use Pathway	4	12	16	7	14	21	3	25	28	46	93	139
34	US 101 NB Off-Ramp @ Marin County Bike Route 20 / Sir Francis Drake Blvd	14	44	58	10	67	77	12	61	73	91	280	371
	TOTAL	**1,952**	**2,118**	**4,070**	**3,146**	**2,081**	**5,227**	**5,475**	**5,351**	**10,826**	**17,805**	**10,659**	**28,464**

Bicycle and pedestrian volumes are presented in the above table for the AM and PM peak periods generally associated with vehicle commuter traffic. *Peak periods for non-auto modes do not necessarily mirror those for vehicles due to the increased travel time associated with the slower progression*. For this monitoring cycle, 14-hour counts were conducted and the data shows that bicycle and pedestrian peak periods tend to be outside the standard 7:00-9:00 AM and 4:00-6:00 PM weekday peak periods.

Table 22 summarizes the highest volume observed two-hour peak periods at each location for weekdays and **Table 23** summarizes the highest volume observed two-hour peak period for weekends (between 10:00 AM and 2:00 PM). The following charts display the differences between bicycle and pedestrian volumes during standard vehicular peaks and observed peak periods.

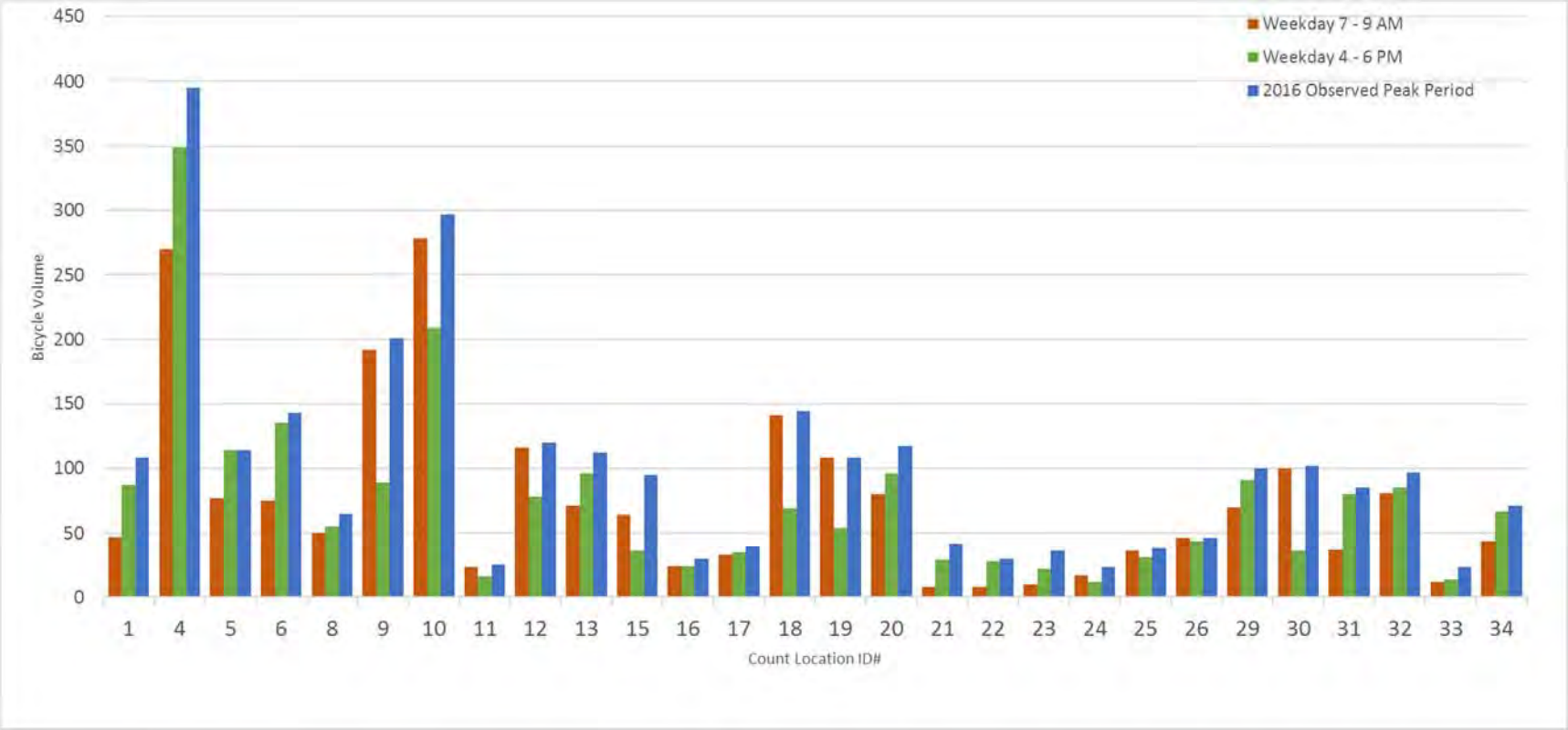
Table 22: Maximum Observed Peak Period Bicycle and Pedestrian Count Volumes for Weekdays

ID	Count Location Description	Pedestrian		Bicycle	
		Peak Period	Count	Peak Period	Count
1	Tiburon Blvd @ Main St	4:45 PM - 6:45 PM	396	2:45 PM - 4:45 PM	108
4	Bridgeway @ Princess St	12:30 PM - 2:30 PM	1,453	12:15 PM - 2:15 PM	395
5	San Anselmo Ave @ Tunstead Ave	12:30 PM - 2:30 PM	471	4:00 PM - 6:00 PM	114
6	Broadway @ Bolinas Rd	5:00 PM - 7:00 PM	438	3:15 PM - 5:15 PM	143
8	Magnolia Ave @ Ward St	5:00 PM - 7:00 PM	357	12:30 PM - 2:30 PM	65
9	Mill Valley-Sausalito Path @ E. Blithedale Ave	7:45 AM - 9:45 AM	96	7:15 AM - 9:15 AM	201
10	Mill Valley-Sausalito Path @ Tennessee Valley Path Junction	4:15 PM - 6:15 PM	153	6:30 AM - 8:30 AM	297
11	Tiburon Bike Path @ Blackie's Pasture / McKegney Green	8:30 AM - 10:30 AM	23	2:45 PM - 4:45 PM	25
12	Larkspur-Corte Madera Path @ Baltimore Ave	8:00 AM - 10:00 AM	137	7:30 AM - 9:30 AM	120
13	Corte Madera Creek Path @ Bon Air Rd	7:00 AM - 9:00 AM	118	3:30 PM - 5:30 PM	112
15	Camino Alto @ E. Blithedale Ave	7:30 AM - 9:30 AM	36	6:45 AM - 8:45 AM	95
16	Pacheco Hill Path @ Alameda del Prado	6:00 AM - 8:00 AM	10	4:30 PM - 6:30 PM	30
17	Los Ranchitos Rd @ Lincoln Hill Multi-Use Pathway	9:00 AM - 11:00 AM	12	4:45 PM - 6:45 PM	39
18	Doherty Dr @ Larkspur Plaza Dr / Rose Ln West	11:15 AM - 1:15 PM	207	7:30 AM - 9:30 AM	144
19	Doherty Dr @ Rose Ln East	11:45 AM - 1:45 PM	385	7:00 AM - 9:00 AM	108
20	Andersen Dr @ Cal Park Tunnel Path	11:30 AM - 1:30 PM	25	4:30 PM - 6:30 PM	117
21	S. Novato Blvd @ Rowland Wy	2:00 PM - 4:00 PM	150	3:00 PM - 5:00 PM	42
22	Bellam Blvd @ Andersen Dr	6:45 AM - 8:45 AM	54	3:45 PM - 5:45 PM	30
23	Nicasio Valley Rd @ Nicasio School	6:00 AM - 8:00 AM	0	10:00 AM - 12:00 PM	36
24	Enfrente Bike Path @ S. Novato Blvd	10:00 AM - 12:00 PM	15	11:15 AM - 1:15 PM	23
25	Tiburon Blvd @ S. Knoll Rd	1:15 PM - 3:15 PM	21	6:45 AM - 8:45 AM	38
26	E. Blithedale Ave @ Tower Dr	10:30 AM - 12:30 PM	43	6:45 AM - 8:45 AM	46
29	Central Marin Ferry Connector Bridge @ Sir Francis Drake Blvd	5:00 PM - 7:00 PM	41	4:45 PM - 6:45 PM	100
30	Almonte Blvd @ Shoreline Hwy	4:45 PM - 6:45 PM	98	7:30 AM - 9:30 AM	102
31	Francisco Blvd E. @ Bay St	5:00 PM - 7:00 PM	185	3:45 PM - 5:45 PM	85
32	Andersen Dr @ Du Bois St	12:45 PM - 2:45 PM	53	4:30 PM - 6:30 PM	97
33	Merrydale Rd @ Lincoln Hill Multi-Use Pathway	4:45 PM - 6:45 PM	14	2:30 PM - 4:30 PM	23
34	US 101 NB Off-Ramp @ Marin County Bike Route 20 / Sir Francis Drake Blvd	5:00 PM - 7:00 PM	28	4:45 PM - 6:45 PM	71

Table 23: Maximum Observed Peak Period Bicycle and Pedestrian Count Volumes for Weekends

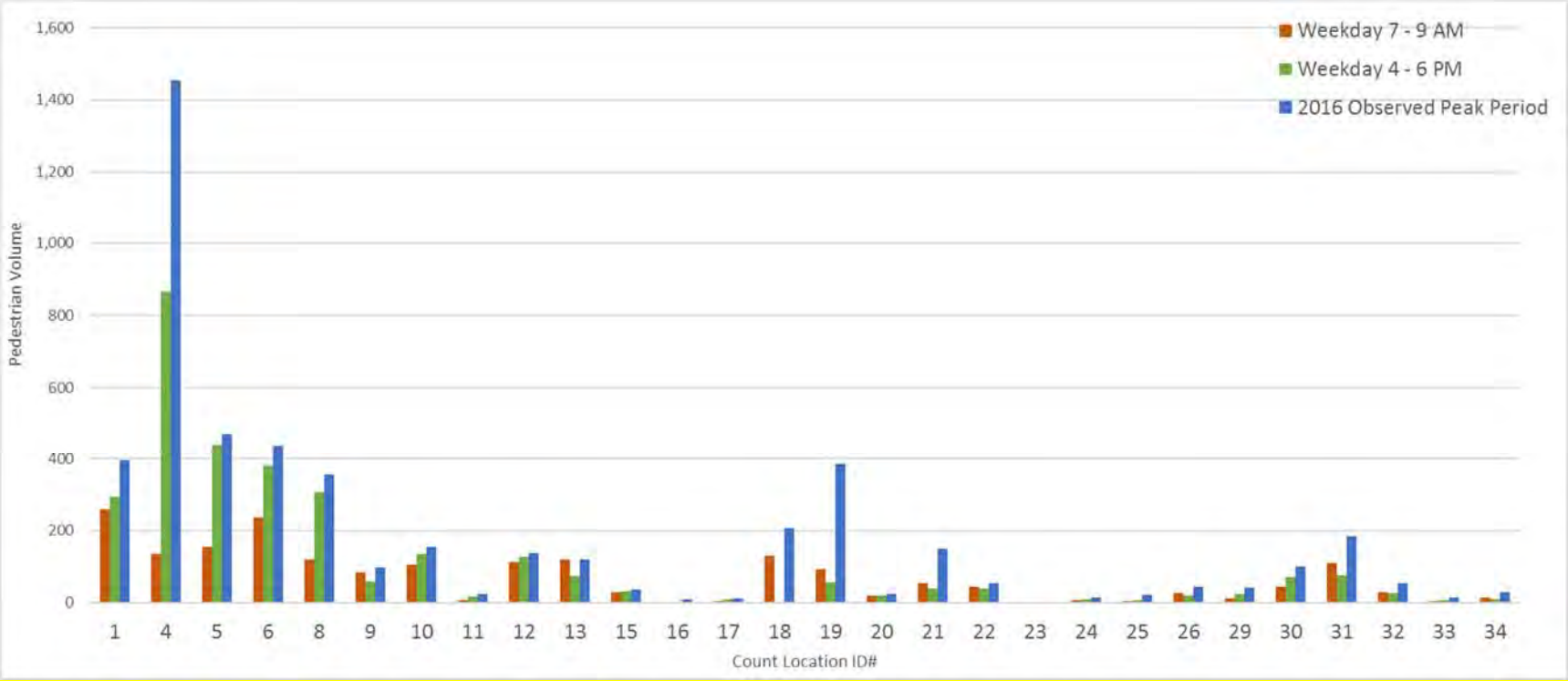
ID	Count Location Description	Pedestrian		Bicycle	
		Peak Period	Count	Peak Period	Count
1	Tiburon Blvd @ Main St	10:00 AM - 12:00 PM	383	10:30 AM - 12:30 PM	306
4	Bridgeway @ Princess St	12:00 PM - 2:00 PM	2,883	12:00 PM - 2:00 PM	1,577
5	San Anselmo Ave @ Tunstead Ave	10:00 AM - 12:00 PM	239	10:30 AM - 12:30 PM	311
6	Broadway @ Bolinas Rd	11:15 AM - 1:15 PM	562	11:15 AM - 1:15 PM	359
8	Magnolia Ave @ Ward St	12:00 PM - 2:00 PM	391	10:30 AM - 12:30 PM	200
9	Mill Valley-Sausalito Path @ E. Blithedale Ave	10:30 AM - 12:30 PM	77	10:15 AM - 12:15 PM	486
10	Mill Valley-Sausalito Path @ Tennessee Valley Path Junction	10:00 AM - 12:00 PM	184	11:45 AM - 1:45 PM	758
11	Tiburon Bike Path @ Blackie's Pasture / McKegney Green	10:00 AM - 12:00 PM	36	10:45 AM - 12:45 PM	46
12	Larkspur-Corte Madera Path @ Baltimore Ave	10:00 AM - 12:00 PM	191	10:45 AM - 12:45 PM	145
13	Corte Madera Creek Path @ Bon Air Rd	10:00 AM - 12:00 PM	128	10:45 AM - 12:45 PM	67
15	Camino Alto @ E. Blithedale Ave	10:15 AM - 12:15 PM	53	10:30 AM - 12:30 PM	225
16	Pacheco Hill Path @ Alameda del Prado	11:15 AM - 1:15 PM	3	10:15 AM - 12:15 PM	49
17	Los Ranchitos Rd @ Lincoln Hill Multi-Use Pathway	10:00 AM - 12:00 PM	13	10:45 AM - 12:45 PM	58
18	Doherty Dr @ Larkspur Plaza Dr / Rose Ln West	12:00 PM - 2:00 PM	225	11:00 AM - 1:00 PM	65
19	Doherty Dr @ Rose Ln East	12:00 PM - 2:00 PM	386	10:15 AM - 12:15 PM	65
20	Andersen Dr @ Cal Park Tunnel Path	10:45 AM - 12:45 PM	38	10:30 AM - 12:30 PM	98
21	S. Novato Blvd @ Rowland Wy	11:00 AM - 1:00 PM	39	10:00 AM - 12:00 PM	33
22	Bellam Blvd @ Andersen Dr	10:15 AM - 12:15 PM	38	10:00 AM - 12:00 PM	14
23	Nicasio Valley Rd @ Nicasio School	6:00 AM - 8:00 AM	0	10:00 AM - 12:00 PM	231
24	Enfrente Bike Path @ S. Novato Blvd	10:00 AM - 12:00 PM	8	10:00 AM - 12:00 PM	34
25	Tiburon Blvd @ S. Knoll Rd	10:30 AM - 12:30 PM	11	10:00 AM - 12:00 PM	164
26	E. Blithedale Ave @ Tower Dr	12:00 PM - 2:00 PM	14	10:15 AM - 12:15 PM	185
29	Central Marin Ferry Connector Bridge @ Sir Francis Drake Blvd	10:00 AM - 12:00 PM	19	11:00 AM - 1:00 PM	110
30	Almonte Blvd @ Shoreline Hwy	10:00 AM - 12:00 PM	59	10:00 AM - 12:00 PM	176
31	Francisco Blvd E. @ Bay St	10:00 AM - 12:00 PM	61	12:00 PM - 2:00 PM	36
32	Andersen Dr @ Du Bois St	11:30 AM - 1:30 PM	40	11:00 AM - 1:00 PM	96
33	Merrydale Rd @ Lincoln Hill Multi-Use Pathway	9:30 AM - 11:30 AM	8	11:00 AM - 1:00 PM	33
34	US 101 NB Off-Ramp @ Marin County Bike Route 20 / Sir Francis Drake Blvd	10:00 AM - 12:00 PM	24	10:00 AM - 12:00 PM	77

Weekday Bicycle Volume Comparison



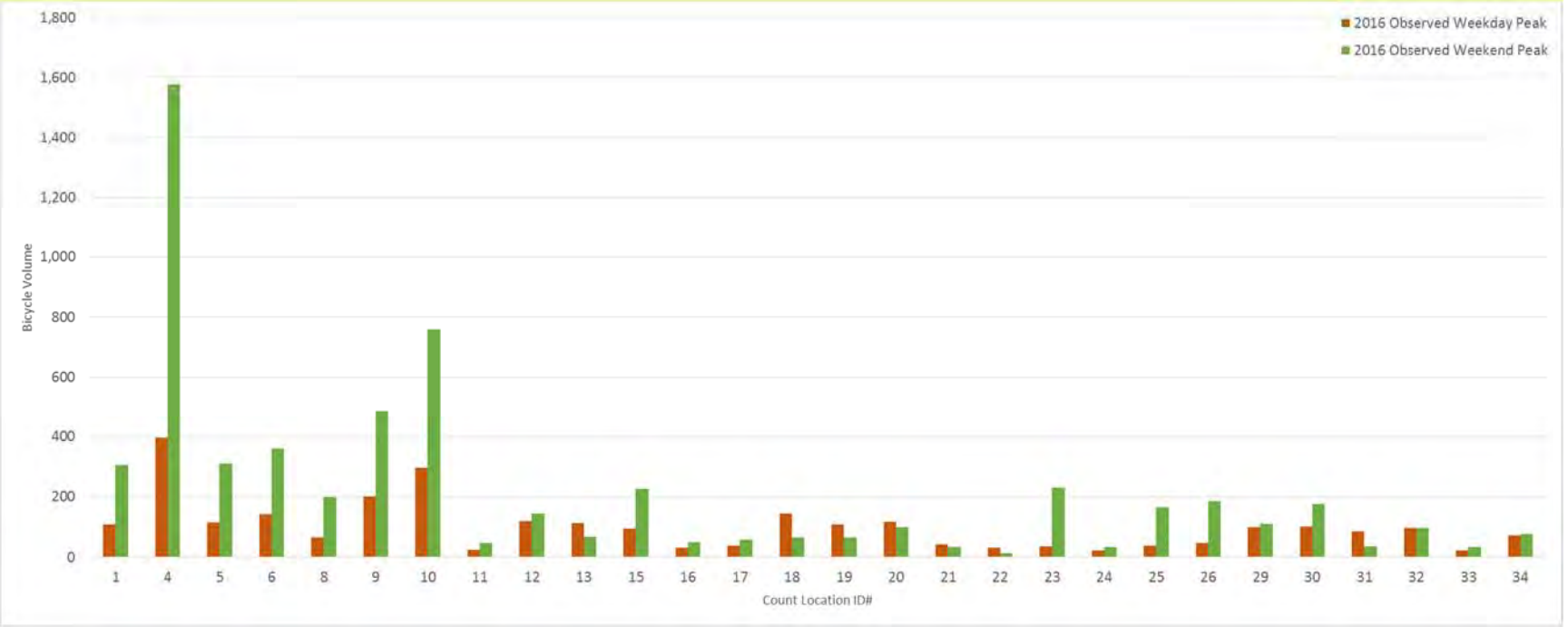
[1]Locations 2 and 3 not counted in 2014 or 2016
[2]Locations 27 and 28 not counted in 2016
[3]Locations 29 through 34 are new for 2016

Weekday Pedestrian Volume Comparison



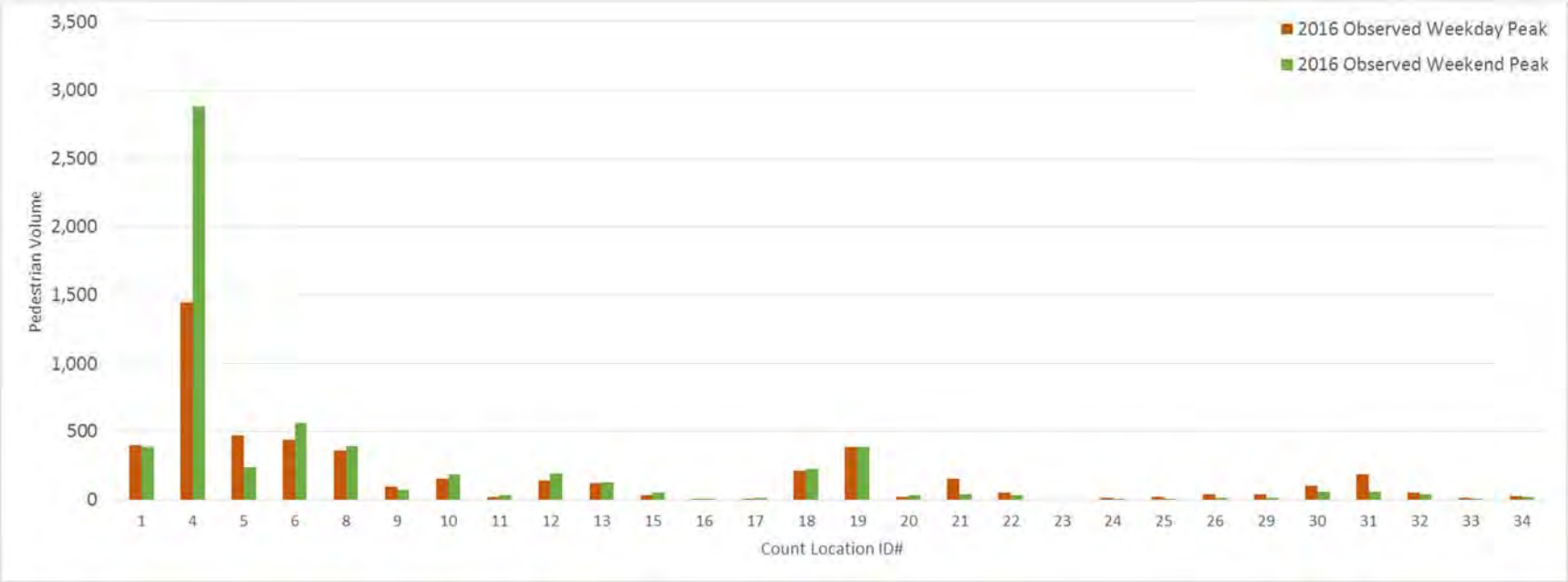
[1]Locations 2 and 3 not counted in 2014 or 2016
[2]Locations 27 and 28 not counted in 2016
[3]Locations 29 through 34 are new for 2016

Weekday vs Weekend Peak Bicycle Volume Comparison



[1]Locations 2 and 3 not counted in 2014 or 2016
[2]Locations 27 and 28 not counted in 2016
[3]Locations 29 through 34 are new for 2016

Weekday vs Weekend Peak Pedestrian Volume Comparison

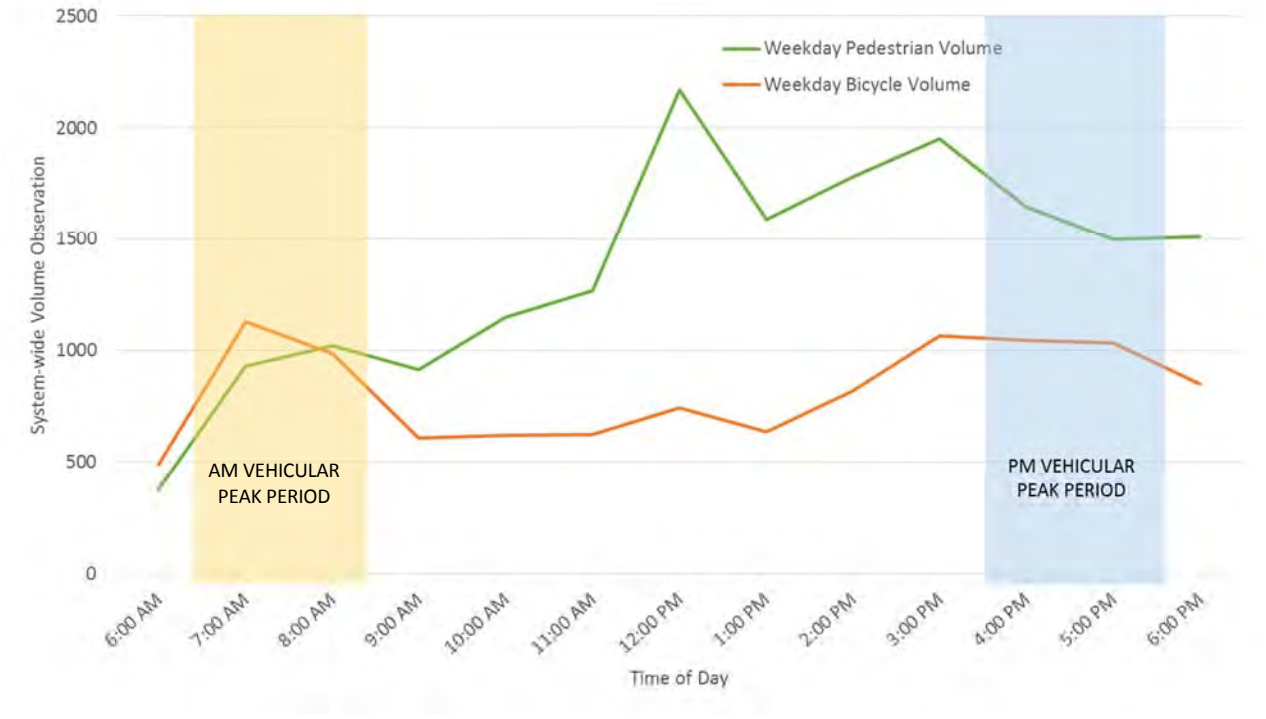


[1]Locations 2 and 3 not counted in 2014 or 2016
[2]Locations 27 and 28 not counted in 2016
[3]Locations 29 through 34 are new for 2016

As shown in the first two comparison charts above, peak observation periods for bicycle and pedestrian activity do generally follow the patterns of traditional AM and PM peak periods for vehicular volumes, notwithstanding a handful exceptions, where peak activity falls outside those vehicular peaks. However, system-wide, there are not strong patterns that emerge when looking for an overall peak period.

The second set of comparison charts display differences between the maximum observed two-hour peak periods on weekdays versus weekends for bicycles and pedestrians. Weekend counts generally show much higher volumes than those found during weekdays. This trend shows that many users on the weekend are recreational users and do not necessarily commute during the weekdays via bicycling or walking.

The following chart shows the total sum of all system-wide bicycle and pedestrian observations, respectively, over the course the 14-hour monitoring period.



Additional bicycle and pedestrian volume attribute trends at each count location are displayed in **Table 24**. The adult to youth ratio for bicyclists and pedestrians was 7:93 for both modes, system-wide at all locations combined. Locations closer to schools show much higher youth to adult ratios, in some cases showing youth volumes exceeding adult volumes.

Overall, in terms of system-wide comparisons, these data show a relatively significant shift from the 2014 data, which showed overall 15:85 and 20:80 splits between youths and adults for cyclists and pedestrians respectively.

As noted in the beginning of this chapter, comparisons between years based on a single data collection data should be made cautiously, since shifts in non-essential travel behavior, and shifts to other travel modes, are far more sensitive to slight shifts in weather, temperature, and other field conditions for non-motorized modes than for motorists. Conclusions based these data should also, therefore, be made cautiously, and based on field observations over several days.

Table 24: Peak Period Bicycle and Pedestrian Volumes and Attributes: Youth vs Adult

ID	Count Location Description	Pedestrians				Bicyclists			
		Youth	Adult	Total	Ratio	Youth	Adult	Total	Ratio
1	Tiburon Blvd @ Main St	27	843	870	3 : 97	0	387	387	0 : 100
4	Bridgeway @ Princess St	108	3,827	3,935	3 : 97	8	2,190	2,198	0 : 100
5	San Anselmo Ave @ Tunstead Ave	62	677	739	8 : 92	3	454	457	1 : 99
6	Broadway @ Bolinas Rd	22	1,143	1,165	2 : 98	1	501	502	0 : 100
8	Magnolia Ave @ Ward St	69	777	846	8 : 92	8	257	265	3 : 97
9	Mill Valley-Sausalito Path @ E. Blithedale Ave	8	190	198	4 : 96	1	691	692	0 : 100
10	Mill Valley-Sausalito Path @ Tennessee Valley Path Junction	7	299	306	2 : 98	8	1,240	1,248	1 : 99
11	Tiburon Bike Path @ Blackie's Pasture / McKegney Green	3	36	39	8 : 92	2	74	76	3 : 97
12	Larkspur-Corte Madera Path @ Baltimore Ave	26	298	324	8 : 92	120	230	350	34 : 66
13	Corte Madera Creek Path @ Bon Air Rd	26	231	257	10 : 90	42	194	236	18 : 82
15	Camino Alto @ E. Blithedale Ave	19	84	103	18 : 82	4	306	310	1 : 99
16	Pacheco Hill Path @ Alameda del Prado	0	6	6	0 : 100	0	76	76	0 : 100
17	Los Ranchitos Rd @ Lincoln Hill Multi-Use Pathway	0	17	17	0 : 100	0	121	121	0 : 100
18	Doherty Dr @ Larkspur Plaza Drive / Rose Ln West	104	82	186	56 : 44	150	118	268	56 : 44
19	Doherty Dr @ Rose Ln East	106	72	178	60 : 40	120	87	207	58 : 42
20	Andersen Dr @ Cal Park Tunnel Path	8	64	72	11 : 89	10	262	272	4 : 96
21	S. Novato Blvd @ Rowland Wy	25	90	115	22 : 78	1	60	61	2 : 98
22	Bellam Blvd @ Andersen Dr	27	88	115	23 : 77	19	30	49	39 : 61
23	Nicasio Valley Rd @ Nicasio School	0	0	0	-	0	197	197	0 : 100
24	Enfrente Bike Path @ S. Novato Blvd	0	19	19	0 : 100	1	56	57	2 : 98
25	Tiburon Blvd @ S. Knoll Rd	2	16	18	11 : 89	1	176	177	1 : 99
26	E. Blithedale Ave @ Tower Dr	4	58	62	6 : 94	0	205	205	0 : 100
29	Central Marin Ferry Connector Bridge @ Sir Francis Drake Blvd	4	44	48	8 : 92	11	256	267	4 : 96
30	Almonte Blvd @ Shoreline Hwy	77	103	180	43 : 57	91	178	269	34 : 66
31	Francisco Blvd E. @ Bay St	15	200	215	7 : 93	11	148	159	7 : 93
32	Andersen Dr @ Du Bois St	1	79	80	1 : 99	0	256	256	0 : 100
33	Merrydale Rd @ Lincoln Hill Multi-Use Pathway	3	8	11	27 : 73	10	37	47	21 : 79
34	US 101 NB Off-Ramp @ Marin County Bike Route 20 / Sir Francis Drake Blvd	3	36	39	8 : 92	2	172	174	1 : 99
TOTAL		756	9,387	10,143	7 : 93	624	8,959	9,583	7 : 93

5.2 Historical Trends

5.2.1 Historical Bicycle Volume Trends

The bicycle data collected for this monitoring period was compared with the previous cycles' data to determine historical trends. It should be noted that these counts are for the peak hour, the one hour experiencing the highest volume of bicyclists throughout the day, and not the two-hour peak period. As shown in the **Table 25**, the average weekday bicycle volume is 76 bicyclists per location in 2016, an 85% increase over the 41 in 2014, and 31% increase over the five-year average (2007 to 2014) of 58. More modest increases relative to 2015 and the five-year average were recorded for weekend bicycle travel. Decreases in observed bicycle volumes were recorded at several locations, most significantly at the Tiburon Bike Path at Blackie's Pasture (ID# 11) during both weekday and weekend periods.

5.2.2 Historical Pedestrian Volume Trends

Weekday and weekend pedestrian peak hour count data is shown in **Table 26.** The pedestrian data collected for this monitoring period was compared with the previous cycles' data to determine historical trends. It should be noted that these counts are for the peak hour, the one hour experiencing the highest volume of pedestrians throughout the day, and not the two-hour peak period. In 2016, the average weekday pedestrian volume is 136 per location, a twofold increase over the 64 in 2014, and 40 percent increase over the five-year average (2007 to 2014) of 97. A less pronounced increase in pedestrian volume was noted on weekends. The increases, decreases, and shifts in pedestrian volume, when examined at the count location level, however, show far more variance than the bicycle counts. This reinforces the notion that pedestrian travel may involve more non-essential and recreational trips than bicyclists and motorists.

5.2.3 Caution Concerning Use of Historical Trend Information

In 2014, the data showed a noticeable downward trends in bicycle and pedestrian activity. This pattern appears to have reversed, showing an overall increase in bicycle ridership in 2016 relative to the five-year average, and a moderate increase in overall pedestrian activity. While it is encouraging to see an overall shift towards increased non-motorized travel, it is improbable that the changes in cycling and pedestrian activity are entirely attributable to overall commute and modal shifts changes over just two years.

As previously mentioned, shifts to other modes of travel are particularly sensitive to moderate changes in weather, temperature, and other field conditions for cyclists and pedestrians. Perhaps more importantly, shifts in weather, temperature, and other field conditions play a significant role in reducing pedestrian and cycling activity for non-essential trips and recreational use. These factors limit the utility of historical comparisons and year-to-year comparisons between these travel modes when only using a single data collection point. Conclusions drawn from this analysis should therefore be made cautiously.

Table 25: Weekday and Weekend Peak Hour Historical Bicycle Counts, 2007-2016

ID[1]	Bicycle Counts - Weekday Peak Hour											Bicycle Counts - Weekend Peak Hour										
	07	08	09	10	11	12	13	14	*2007 - 2014 Average*	2016	% Change	07	08	09	10	11	12	13	14	*2007 - 2014 Average*	2016	% Change
1	64	54	84	40	76	53	67	45	60	**61**	**2%**	154	147	64	213	185	127	103	150	143	**161**	**13%**
4	129	184	121	127	40	207	314	132	157	**218**	**39%**	91	467	502	460	476	283	573	746	450	**812**	**80%**
5	41	40	69	62	100	46	60	36	57	**66**	**16%**	102	34	128	119	166	233	124	134	130	**171**	**32%**
6	61	67	80	58	303	55	61	50	92	**80**	**-13%**	167	82	239	128	238	302	164	233	194	**196**	**1%**
8	25	33	45	25	26	16	31	28	29	**42**	**45%**	76	102	104	113	125	188	239	87	129	**111**	**-14%**
9	84	98	93	81	99	122	64	69	89	**113**	**27%**	111	302	300	243	279	355	241	252	260	**262**	**1%**
10	101	156	116	166	114	153	112	93	126	**178**	**41%**	266	339	397	344	386	308	367	360	346	**397**	**15%**
11	77	58	93	93	86	36	41	58	68	**19**	**-72%**	80	139	153	251	255	114	106	190	161	**27**	**-83%**
12	28	44	41	36	68	31	43	35	41	**102**	**149%**	57	57	69	66	77	47	79	69	65	**85**	**31%**
13	27	38	35	61	N/A	24	32	35	36	**63**	**75%**	35	26	49	66	N/A	40	45	35	42	**37**	**-12%**
15	36	33	18	93	20	12	8	14	29	**69**	**138%**	38	131	42	20	21	82	43	50	53	**115**	**117%**
16	6	11	4	28	27	3	17	21	15	**18**	**20%**	5	13	30	22	32	32	24	22	23	**27**	**17%**
17	22	11	15	65	101	29	17	23	35	**20**	**-43%**	67	4	11	11	38	59	17	47	32	**40**	**25%**
18	28	26	40	78	86	N/A	115	15	55	**128**	**133%**	19	31	12	9	37	N/A	21	18	21	**39**	**86%**
20	37	39	35	30	76	33	40	20	39	**57**	**46%**	23	23	14	95	77	47	57	29	46	**60**	**30%**
21	18	N/A	12	76	12	5	15	10	21	**22**	**5%**	13	N/A	10	11	15	20	16	21	15	**18**	**20%**
22	21	N/A	25	26	29	66	24	17	30	**24**	**-20%**	8	N/A	16	22	49	30	10	11	21	**10**	**-52%**
Average	47	59	54	67	79	56	62	41	58	**76**	**31%**	77	126	126	129	154	142	131	144	129	**152**	**18%**

Note: Locations where data was absent in 2014 report are not included in comparison table

Table 26: Weekday and Weekend Peak Hour Pedestrian Historical Counts, 2007-2016

ID[1]	Pedestrian Counts - Weekday Peak Hour											Pedestrian Counts - Weekend Peak Hour										
	07	08	09	10	11	12	13	14	*2007 - 2014 Average*	2016	% Change	07	08	09	10	11	12	13	14	*2007 - 2014 Average*	2016	% Change
1	269	134	226	226	82	234	228	130	191	**193**	**1%**	564	187	238	200	394	332	159	427	313	**249**	**-20%**
4	348	514	394	394	506	696	638	376	483	**732**	**52%**	303	1388	1782	1676	1055	890	1316	1381	1224	**1,699**	**39%**
5	122	66	140	140	181	228	186	107	146	**260**	**78%**	222	60	194	258	394	307	202	234	234	**127**	**-46%**
6	74	178	121	121	252	187	131	69	142	**259**	**82%**	125	276	124	121	205	204	209	197	183	**321**	**75%**
8	84	105	123	123	125	97	159	81	112	**174**	**55%**	102	114	133	48	195	170	128	165	132	**199**	**51%**
9	38	41	26	26	86	78	44	35	47	**64**	**36%**	19	39	28	29	33	31	63	34	35	**42**	**20%**
10	20	54	40	40	33	106	46	44	48	**73**	**52%**	48	40	55	52	53	75	65	43	54	**109**	**102%**
11	84	164	78	78	117	92	72	79	96	**17**	**-82%**	75	97	145	166	267	148	212	153	158	**24**	**-85%**
12	64	42	51	51	51	31	56	55	50	**77**	**54%**	33	44	59	33	52	29	41	64	44	**104**	**136%**
13	35	48	35	35	N/A	44	37	36	39	**73**	**87%**	26	37	47	25	N/A	42	23	28	33	**71**	**115%**
15	35	13	15	15	112	10	20	11	29	**22**	**-24%**	15	12	6	9	8	22	10	15	12	**34**	**183%**
16	7	15	7	7	29	22	2	18	13	**9**	**-31%**	11	8	11	14	12	16	7	5	11	**3**	**-73%**
17	14	1	4	4	78	8	6	9	16	**8**	**-50%**	20	1	4	5	11	0	13	6	8	**9**	**13%**
18	38	46	161	161	387	N/A	118	15	132	**193**	**46%**	30	26	13	8	30	N/A	22	21	21	**199**	**848%**
20	11	19	31	31	23	0	10	1	16	**15**	**-6%**	21	24	10	71	32	3	5	2	21	**24**	**14%**
21	39	N/A	9	9	29	16	41	16	23	**104**	**352%**	13	N/A	6	7	8	25	9	11	11	**22**	**100%**
22	39	N/A	9	9	30	154	11	11	38	**36**	**-5%**	20	N/A	34	31	31	30	5	11	23	**24**	**4%**
Average	78	96	86	86	133	125	106	64	97	**136**	**40%**	97	157	170	162	174	145	146	165	152	**192**	**26%**

Note: Locations where data was absent in 2014 report are not included in comparison table

6.0 ADDITIONAL ROADWAY CHARACTERISTICS

The following chapter discusses the distributions of ridership on CMP roadways and Marin County transit providers. As mentioned earlier, vehicle occupancy counts were conducted at the following seven locations within the CMP network:

1. Segment #1A – SR 1 from US 101 to Tennessee Valley Road
2. Segment #1B – SR 1 from Northern Avenue to Almonte Boulevard
3. Segment #3A – US 101 from Golden Gate Bridge to Spencer Avenue
4. Segment #3B – US 101 from SR 131 (Tiburon Boulevard) to Tamalpais Drive
5. Segment #3F – US 101 from Freitas Parkway to Lucas Valley Road
6. Segment #3G – US 101 from Atherton Avenue to Sonoma County Line
7. Segment #5A – I-580 from Sir Francis Drake Boulevard to Marin County Line

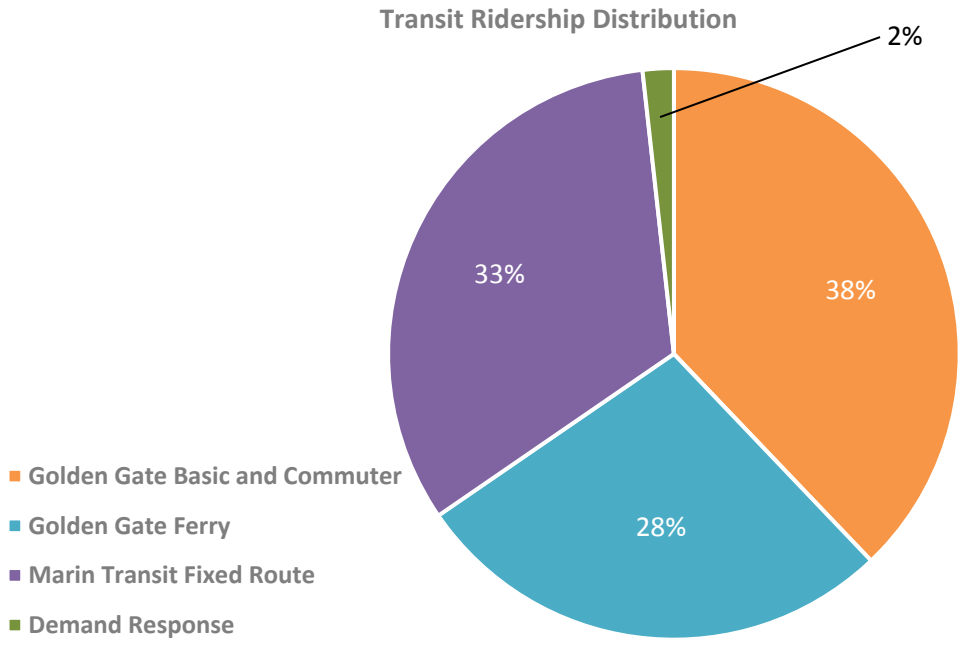
6.1 Passenger Vehicle Rider Distribution

During the summer of 2017, multiple vehicle occupancy counts were collected by MTC, TAM, and Caltrans along the CMP arterial and freeway segments within Marin County. The vehicle occupancy study will be made available separately once the collected data is compiled and analyzed.

6.2 Transit Rider Distribution

This section discusses the ridership distribution amongst all transit operations within Marin County and the following chart displays the use percentage of each transit mode. The following lists the services included in the analysis for Fiscal Year 2015-2016:

1. Golden Gate Basic and Commuter Service
2. Golden Gate Ferry Service
3. Marin Transit Sponsored Local Service
4. Marin Transit Shuttles and West Marin Routes (including Novato Dial-a-Ride)
5. Marin Access Paratransit Service



The above chart shows that there is a large (68 percent total) ridership using Golden Gate Transit Services. Of this, 38 percent use the Basic and Commuter Services and the remaining 25 percent take the Ferry. This distribution helps display that when looking at improving transit services within Marin County, Golden Gate Transit Services would benefit most. The distribution also illustrates that 33 percent of transit users are on the Marin Transit Fixed Route Services. This knowledge allows TAM to determine where to allocate their limited funding for transit improvements in the near future.

The remaining two percent of ridership is comprised of the Marin Access Services. Though these services do not provide a majority of rides within the system, they provide essential movement of Marin residents and should not be ignored when considering improvements.

7.0 NEXT STEPS

7.1 2014 CMP Conformance

As discussed earlier, two arterial segments and four freeway segments were found to be in non-compliance of the adopted LOS standards. Since the arterial segments, and three of the freeway segments have been grandfathered in, no actions or corrective measures are required. Additionally, as previously mentioned in this report, the fourth freeway segment that did not meet the adopted LOS standard has a scheduled improvement slated for construction completion by Fall 2017 that will add a third travel lane in the direction of travel that experienced PM peak hour congestion. Therefore, no actions or corrective measures are required beyond monitoring the performance of that segment after construction of the improvement has been completed.

7.2 Travel Time Reliability

The FAST Act, the successor federal transportation bill to MAP 21, continued to place increased emphasis on travel time reliability. Since travel time reliability is extremely important to the users, and since it plays a key role in a user's mode choice, TJKM recommends that TAM continue including travel time reliability data for future CMP monitoring efforts.

7.3 CMP Update

The next step in the CMP process is to complete the 2017 CMP Update. TJKM will work with TAM staff on a work plan and schedule to complete the 2017 Update as per CMP guidelines.

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